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ADDENDUM NO. 01

Issued: November 20, 2018

Project: Valley Park Elementary School Addition
12301 Lamar Avenue, Leawood, Kansas 66209

Project No. 18027
BVSD Project No. VPE-1901

Owner: Blue Valley School District USD #229
P.O. Box 23901
Overland Park, Kansas 66283-0901

Bidding Documents Issued: November 13, 2018

This Addendum includes these three (3) pages and the following attachments:

Project Manual:
Revised Section 000010 "Table of Contents" consisting of 4 pages.
Revised Section 012800 "Toilet, Bath and Laundry Accessories" consisting of 3 pages.
Revised Section 329300 "Plants" consisting of 12 pages.
Refer to Civil Addendum 01 consisting of 2 pages.
Refer to MEP Addendum 01 consisting of 2 typed pages and, new added sections and revised sections.

Drawings:
Revised Architectural Drawing Sheets:
Revised Civil Drawing Sheets C102, C200 and C700.
Revised Structural Drawing Sheet S101A "Foundation Plan – Area A – Level 1".
Refer to MEP Addendum 01 for revised mechanical sheets: M101, M201A, M201B, M400, M500, M600 M601, M602 and M603, plumbing sheet: P100 and technology sheet: TN101A.

PROJECT MANUAL REVISIONS

A1 SECTION 000010 - TABLE OF CONTENTS

A1.1 REPLACE existing Section 000010 "Table of Contents" with the attached revised Section 000010 "Table of Contents" dated November 20, 2018.

A2 SECTION 051200 – STRUCTURAL STEEL FRAMING

A2.1 CHANGE Paragraph 1.7 B to read as follows: B. Installer Qualifications: A qualified installer as follows:

A2.2 DELETE Subparagraph 1.7 B.3.

A3 SECTION 064023 – INTERIOR ARCHITECTURAL WOODWORK

A3.1 Paragraph 2.1 H; DELETE: Model C24 and 1830 lbs, and INSERT: Model C9 and 4520 lbs, respectively.

A3.2 DELETE Paragraph 2.1 J and associated subparagraph.

A3.3 DELETE Article 2.3 in it's entirety.

A3.4 Paragraph 2.6 B, DELETE: RCP #851, and INSERT: RCP #376.

A4 SECTION 092900 – GYPSUM BOARD

A4.1 Subparagraph 1.1 A.5; DELETE: (092900.A9) and INSERT: (092900.A09).

A5 SECTION 093000 – TILING

A5.1 Paragraph 2.2 A; DELETE: Glazed ceramic wall tile, and INSERT: Porcelain wall tile.

A5.2 Subparagraph 3.3 F.1; DELETE: Porcelain Tile, and INSERT: Porcelain Wall Tile…

A6 SECTION 097723 – FABRIC-WRAPPED PANELS

A6.1 Subparagraph 2.1 B.1; CHANGE to read: 1. General: Material Finish Legend designations: "WP1", "WP2" and "WP3".

A6.2 Clause 2.1 B.7.a; CHANGE to read: a. WP2 and WP3 Facings:

A6.3 INSERT Clause 2.1 B.7.b as follows:

b. WP1 Facings:
   1) Provide Carnegie Fabrics; Xorel pattern "Switch".
   2) Contents: 100 percent IFR Xorel.
   3) Weight: 14.94 oz/lin yd.
   4) Width: 56 inches, 54 inches usable.
   5) Repeat: 13.50 inch width.
   6) Backing: X-Protect Wall.
   7) Flame Retardancy: Class A per ASTM E 84.
   8) Colors: Refer to Material Finish Legend.

A7 SECTION 101100 – VISUAL DISPLAY UNITS

A7.1 DELETE Clause 2.3 A.8.c.

A7.2 DELETE Subparagraphs 2.5 D.1, D.3 and D.4.

A8 SECTION 102800 – TOILET, BATH AND LAUNDRY ACCESSORIES

A8.1 REPLACE existing Section 102800 "Toilet, Bath and Laundry Accessories" with the attached revised Section 102800 "Toilet, Bath and Laundry Accessories" dated November 20, 2018.

M1 REFER TO ATTACHED MEP ADDENDUM NO. 01

E1 REFER TO ATTACHED MEP ADDENDUM NO. 01

P1 REFER TO ATTACHED MEP ADDENDUM NO. 01

DRAWINGS REVISIONS

A9 REISSUED ARCHITECTURAL SHEETS

REISSUE the following sheets in their entirety that feature changes to the construction documents G000, G102, A101A, A102A, A141A, A201, A311, A331, A332, A333, A361, A362, A363, A501, A502, A521, A681, dated November 20, 2018, attached.

A10 NEW ARCHITECTURAL SHEETS

ADD the following sheet A801, dated November 20, 2018, attached.

S1 SHEET S101A –FOUNDATION PLAN – AREA A – LEVEL 1

S1.1 REVISE portion of Sheet S101A, according to changes indicated, dated November 20, 2018, attached.

C2 REFER TO ATTACHED CIVIL ADDENDUM NO. 01

M2 REFERENCE ATTACHED MEP ADDENDUM NO. 01

END OF ADDENDUM NO. 01

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AIA Document A312, Payment Bond
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End of Section 000010

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Public-use washroom accessories.
   2. Toilet tissue dispenser.
   3. Custodial accessories.

B. Owner Furnished and Installed Material:
   1. Paper towel dispensers.
   2. Soap dispensers.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.
   1. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.

B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
   1. Identify locations using room designations indicated.
   2. Identify products using designations indicated.

1.3 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 DELIVERY, STORAGE AND HANDLING

A. General: Protect items from physical damage and from becoming wet, soiled, scratched and from construction operations. Comply with manufacturer's recommendations for handling, storage and protection before, during and after installation.

1.6 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
   1. Where cutouts are required in other work, provide templates, substrate preparation instructions, and directions for preparing cutouts and for installation of anchorage devices.

PART 2 - PRODUCTS

2.1 PUBLIC-USE WASHROOM ACCESSORIES

A. Basis-of-Design Product: Subject to compliance with requirements, provide products specified from Bradley Corporation or comparable products by one of the following:
   1. Bobrick Washroom Equipment, Inc.

B. Liquid-Soap Dispenser – SD (102800.A05): Owner furnished and installed.

C. Grab Bar – GB and VGB (102800.A06):
1. Basis-of-Design Product: Bobrick B-6806.99 Series.
   a. Comparable products, meeting specified requirements, from Bradley Corporation will be considered.
2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, 18 ga. 0.05 inch thick.
   a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
4. Outside Diameter: 1-1/2 inches.
5. Configuration and Length:
   a. Straight, 36 inches long behind accessible toilets.
   b. Straight, 42 inches long at side of accessible toilets.
   c. Straight, 18 inches long mounted vertically above 42 inch side grab bar

D. Toilet Tissue (Roll) Dispenser – TTD (102800.A01):
1. Basis-of-Design Product: Bobrick B-274 (No substitutions)
2. Mounting: Surface.
3. Material and Finish: Stainless steel, No. 4 finish (satin).

E. Paper Towel (Roll) Dispenser – PTD (102800.A02): Owner furnished and installed.

F. Vendor – SND (102800.A07):
1. Basis-of-Design Product: Bradley Model 4017-10-45.
2. Type: Sanitary napkin and tampon.
3. Mounting: Semi-recessed.
4. Door: Hinged face panel with 2 tumbler locksets.
5. Capacity: Not less than, 30 napkins and 28 tampons.
6. Operation: Single coin (25 cents).
7. Exposed Material and Finish: Stainless steel, No. 4 finish (satin).
8. Lockset: Tumbler type with separate lock and key for coin box.

G. Sanitary-Napkin Disposal Unit – SNR (102800.A08):
1. Basis-of-Design Product: Bradley Model 4781-15.
2. Mounting: Surface mounted.
3. Door or Cover: Self-closing, disposal-opening cover and hinged face panel with tumbler lockset.
4. Receptacle: Removable.
5. Material and Finish: Stainless steel, No. 4 finish (satin).
6. Provide each unit with one box of manufacturer's standard wax paper liners.

H. Waste Receptacles – WR (102800.A03): Owner furnished and installed.
1. Basis-of-Design Product: Bradley Model 2271.
2. Description: Fully-recessed combination towel dispenser and waste receptacle. Towel cabinet door shall be equipped with piano hinge and tumbler lock. Towel dispenser by Owner. Waste receptacle shall have an 18 gallon capacity and shall be removable.
3. Material and Finish: Stainless steel, No. 4 finish (satin).
4. Provide each unit with manufacturer's standard vinyl liner.

2.2 CUSTODIAL ACCESSORIES

A. Basis-of-Design Product: Subject to compliance with requirements, provide Bobrick or comparable product by one of the following:
1. American Specialties, Inc.
2. Bradley Corporation.

B. Utility Shelf – SH (102800.A22):
1. Bobrick: B-298x18 Satin SS, 18" L x 8" D.
2. Bradley: 780-2 Series.
3. ASI: 0600-B Series.

C. Mop and Broom Holder – MBH (102800.A23):
   1. Basis-of-Design Product: Bobrick Model B-239 x 24.
   2. Description: Unit with shelf, hooks and holders.
   3. Length: 34 inches.
   4. Mop/Broom Holders: Three (3), spring-loaded, rubber hat, cam type and four (4) hooks.
   5. Material and Finish: Stainless steel, No. 4 finish (satin).
      a. Shelf: Not less than nominal 0.05 inch thick stainless steel.
   6. Locations: Provide at each mop sink location. Mount at height as directed by Architect.

2.3 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.

B. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.

C. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 hot-dip zinc coating.

D. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.

E. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.

F. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

G. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2.4 FABRICATION

A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.

B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six (6) keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

END OF SECTION 102800

SECTION 32 9300

PLANTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Trees.
2. Shrubs.
3. Ground cover.
4. Plants.
5. Tree stabilization.
6. Edgings.

B. Related Sections:

1. Division 31 Section "Site Clearing" for protection of existing trees and plantings, topsoil stripping and stockpiling, and site clearing.
2. Division 31 Section "Earth Moving" for excavation, filling, and rough grading and for subsurface aggregate drainage and drainage backfill materials.
3. Division 32 Section "Turf and Grasses" for lawn and meadow planting.
4. Division 33 Section "Subdrainage" for below-grade drainage of landscaped areas, paved areas, and wall perimeters.

1.3 DEFINITIONS

A. Backfill: The earth used to replace or the act of replacing earth in an excavation.

B. Balled and Burlapped Stock: Exterior plants dug with firm, natural balls of earth in which they are grown, with ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of tree or shrub required; wrapped, tied, rigidly supported, and drum laced as recommended by ANSI Z60.1.

C. Balled and Potted Stock: Exterior plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than diameter and depth recommended by ANSI Z60.1 for type and size of exterior plant required.

D. Bare-Root Stock: Exterior plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than minimum root spread according to ANSI Z60.1 for type and size of exterior plant required.

E. Clump: Where three or more young trees were planted in a group and have grown together as a single tree having three or more main stems or trunks.

F. Container-Grown Stock: Healthy, vigorous, well-rooted exterior plants grown in a container with well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of exterior plant required.

G. Fabric Bag-Grown Stock: Healthy, vigorous, well-rooted exterior plants established and grown in-ground in a porous fabric bag with well-established root system reaching sides of fabric bag. Fabric bag size is not less than diameter, depth, and volume required by ANSI Z60.1 for type and size of exterior plant.

H. Finish Grade: Elevation of finished surface of planting soil.

I. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

J. Multi-Stem: Where three or more main stems arise from the ground from a single root crown or at a point right above the root crown.

K. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.

L. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

M. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Verification: For each of the following:

1. 5 lb of mineral mulch for each color and texture of stone required, in labeled plastic bags.

C. Qualification Data: For qualified landscape Installer.

1. The landscape installer shall provide a minimum of three references to the Owner that indicate the installer's abilities and a minimum of three years of experience in the installation and successful completion of commercial lawns and landscapes. The Owner shall have permission to call the references listed on the submitted documents by telephone to verify the claims stated therein. If the installer is not qualified, as determined by the Owner's review and verification of the supplied documents, the Owner shall have the right to terminate the Contract.

2. The irrigation booster pump, controllers, and valve installer shall provide a minimum of three professional references to the Owner that indicate the installer's qualified abilities and a minimum of three years of experience in the installation and successful completion of commercial irrigation systems. The Owner shall have permission to call the references listed on the submitted documents by telephone to verify the claims stated therein. If the installer is not qualified, as determined by the Owner's review and verification of the supplied documents, the Owner shall have the right to terminate the Contract.

D. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following:

1. Manufacturer's certified analysis for standard products.
2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.

E. Material Test Reports: For existing surface soil and imported topsoil.

F. Planting Schedule: Indicating anticipated planting dates for exterior plants.

G. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of exterior plants during a calendar year. Submit before expiration of required maintenance periods.

H. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of exterior plants.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

2. The landscape installer shall provide a minimum of three references to the Owner that indicate the installer's abilities and a minimum of three years of experience in the installation and successful

completion of commercial lawns and landscapes. The Owner shall have permission to call the references listed on the submitted documents by telephone to verify the claims stated therein. If the installer is not qualified, as determined by the Owner's review and verification of the supplied documents, the Owner shall have the right to terminate the Contract.

3. Blue Valley USD 229 does not consider Wolfert Landscape, LLC to be a qualified, responsible landscape contractor.

B. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

C. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of topsoil.

1. Report suitability of topsoil for plant growth. State-recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.

D. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."

E. Tree and Shrub Measurements: Measure according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above the ground for trees up to 4-inch caliper size, and 12 inches above the ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.

F. Observation: The School District or Landscape Architect may observe trees and shrubs either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size, and quality. Architect retains right to observe trees and shrubs further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

1. Notify the School District and Landscape Architect of sources of planting materials fourteen (14) days in advance of delivery to site.

G. Preinstallation Conference: Conduct conference at Project site.

1. The Contractor shall notify the District and Landscape Architect 24 hours prior to the beginning of any plantings. The district may or may not decide to review the planting on a case by case basis.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver exterior plants freshly dug.

B. Do not prune trees and shrubs before delivery except as approved by Architect. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of exterior plants during delivery. Do not drop exterior plants during delivery and handling.

C. Handle planting stock by root ball.

D. Deliver exterior plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set exterior plants and trees in shade, protect from weather and mechanical damage, and keep roots moist.

1. Heel-in bare-root stock. Soak roots that are in dry condition in water for two hours. Reject dried-out plants.
2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
3. Do not remove container-grown stock from containers before time of planting.
4. Water root systems of exterior plants stored on-site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.

1.7 PROJECT CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.

1. Spring Planting: April 1st-June 15th
2. Fall Planting: September 1st – October 31st .

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed according to manufacturer's written instructions and warranty requirements.

C. Coordination with Lawns: Plant trees and shrubs after finish grades are established and before planting lawns unless otherwise acceptable to Architect.

1. When planting trees and shrubs after lawns, protect lawn areas and promptly repair damage caused by planting operations.

1.8 WARRANTY

A. Special Warranty: Installer's standard form in which Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, abuse by Owner, or incidents that are beyond Contractor's control.
b. Structural failures including plantings falling or blowing over.
c. Faulty operation of tree stabilization.
d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Periods from Date of Substantial Completion:

a. Trees and Shrubs: One year. Warranty period shall start over if plant material is replaced.
b. Ground Cover and Plants: One year. Warranty period shall start over if plant material is replaced.

3. Include the following remedial actions as a minimum:

a. Remove dead exterior plants immediately. Replace immediately unless required to plant in the succeeding planting season.
b. Replace exterior plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
c. Provide extended warranty for replaced plant materials; warranty period equal to original warranty period.

1.9 MAINTENANCE SERVICE

A. The maintenance shall begin immediately after planting. The trees, shrubs, ornamental grasses, perennial, bulb, and ground cover plantings shall be protected and maintained by watering, pruning, fertilizing, and replanting as necessary up until acceptance of the Project by the Owner at the time of Substantial Completion so as to assure healthy plants in a vigorous growing condition. After acceptance of the Work, the Contractor shall be responsible for maintaining the newly installed plant materials for a period of one year after date of Substantial Completion. This work shall include watering, weeding, insect and disease control and general care of all woody plants installed with this project under this Contract.

1. Maintenance Period one year from date of Acceptance. The maintenance period shall be extended an additional 1 year for any replacement plants from the date of planting.

2. The Contractor shall notify the Owner in writing when plants are replaced.

3. Maintenance work shall occur during school after hours (7:00 am to 8:30 am and 4:00 pm to 9:00 pm Monday through Thursday. Friday from 7:00 am to 9:00 pm)

PART 2 PRODUCTS

2.1 TREE AND SHRUB MATERIAL

A. General: Furnish nursery-grown trees and shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

B. Provide trees and shrubs of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of trees and shrubs required. Trees and shrubs of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.

C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

D. Label each tree and shrub with securely attached, waterproof tag bearing legible designation of botanical and common name.

E. If formal arrangements or consecutive order of trees or shrubs is shown, select stock for uniform height and spread, and number label to assure symmetry in planting.

2.2 SHADE AND FLOWERING TREES

A. Type 1 Shade Trees: Single-stem trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, complying with ANSI Z60.1 for type of trees required.

1. Provide balled and burlapped trees.
2. Branching Height: One-third to one-half of tree height.

B. Small Upright Trees: Branched or pruned naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1; stem form as follows:

1. Stem Form: Single trunk.
2. Provide balled and burlapped trees.

C. Small Spreading Trees: Branched or pruned naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1; stem form as follows:

1. Stem Form: Single trunk.
2. Provide balled and burlapped trees.

2.3 DECIDUOUS SHRUBS

A. Form and Size: Shrubs with not less than the minimum number of canes required by and measured according to ANSI Z60.1 for type, shape, and height of shrub.

1. Shrub sizes indicated are sizes after pruning.
2. Provide balled and burlapped and/or container-grown shrubs.

2.4 CONIFEROUS EVERGREENS

A. Form and Size: Normal-quality, well-balanced, coniferous evergreens, of type, height, spread, and shape required, complying with ANSI Z60.1.

B. Form and Size: Specimen quality as described symmetrically shaped coniferous evergreens.

1. Shearing Designation: Natural, never sheared (N).

2. Provide balled and burlapped and/or container-grown trees.

2.5 BROADLEAF EVERGREENS

A. Form and Size: Normal-quality, well-balanced, broadleaf evergreens, of type, height, spread, and shape required, complying with ANSI Z60.1.

B. Form and Size: Specimen quality as described symmetrically shaped broadleaf evergreens.

1. Shearing Designation: Natural, never sheared (N).

2. Provide balled and burlapped and/or container-grown trees.

2.6 GROUND COVER PLANTS

A. Ground Cover: Provide ground cover of species indicated, established and well rooted in pots or similar containers, and complying with ANSI Z60.1 and the following requirements:

1. English Ivy (Hedera Helix or Baltica): 2-1/4-inch (57-mm) pot size with a minimum of 1 runner not less than 8 inches (200 mm) long.
2. Dwarf Periwinkle (Vinca Minor): 2-1/4-inch (57-mm) pot size with a minimum of 3 to 6 runners not less than 6 to 8 inches (150 to 200 mm) long.

2.7 PLANTS

A. Perennials: Provide healthy, field-grown plants from a commercial nursery, of species and variety shown or listed, complying with requirements in ANSI Z60.1.

B. Vines: Provide vines of species indicated complying with requirements in ANSI Z60.1 as follows:

1. Two-year plants with heavy, well-branched tops, with not less than 3 runners 18 inches or more in length, and with a vigorous well-developed root system.
2. Provide field-grown vines. Vines grown in pots or other containers of adequate size and acclimated to outside conditions will also be acceptable.

2.8 TOPSOIL (not including playing fields- See Natural Grass Playing Field Systems Section 02 9100 for soil on the playing field)

1. Topsoil – a natural or cultivated surface – shall be a soil layer containing organic matter and sand, silt, and clay particles. It shall be friable, pervious, and a darker shade of brown than underlying subsoil. It shall also be reasonably free of subsoil, clay lumps, grass, weeds, brush, roots, stumps, toxic substances, litter, gravel, stones or other materials greater than 1” in diameter, and other deleterious material. Topsoil shall not contain plant parts of Nutsedge, Johnson Grass, Nimblewill, Bermuda Grass, Bindweed or other noxious weeds. Topsoil shall not be delivered in a muddy or frozen condition.

B. Using a standard proctor at optimum moisture content (+ 2%), all backfill shall be mechanically compacted to a minimum of 95% of maximum density under paved areas and structures. In lawn and landscape areas, the soil shall be compacted only enough to prevent future settlement in the fills and especially where utility trenching has occurred. Soils that are in lawn and landscape areas that have been overly compacted, as determined by the Architect/Engineer/Landscape Architect, by construction operations shall be treated as follows: In lawn and landscape areas outside of tree drip-lines (and/or as indicated in the plans and/or specifications,) loosen compacted soil using a ripper at a minimum depth of 6” (six inches) below top of subgrade. Till and harrow the ripped soil to smooth it before adding 6” of topsoil. Clods, if any, shall be smaller than 3/4” (three-quarter inch) diameter prior to adding topsoil. This subsoil shall be mixed in size so that a significant amount of fines exist for topsoil contact. Add 6” of topsoil on top of loosened subgrade. Topsoil shall be placed to minimize excessive compaction. Grade, till, and harrow topsoil as necessary to provide a finished grade that is smooth, composed of soil of mixed sizes of ¼” (one-quarter inch) diameter and smaller, and has a significant amount of fines to provide good soil/seed contact. In areas that already have topsoil, loosen soil with a ripper at a minimum depth of 12” (twelve inches) below finished grade. Grade, till, and harrow soil as necessary to provide a finished grade that is smooth, composed of soil of mixed sizes of ¼” (one-quarter inch) diameter and smaller, and has a significant amount of fines to provide good soil/seed contact. When utilizing a ripper, the moisture content of the soil shall be adequately (but not excessively) dry and not excessively wet so that excessive soil slabbing and/or soil clodding, larger than 3” (three inches) in diameter, does not occur during ripping operations. Soil conditions are considered excessively wet when only large chunks of soil, which are shiny and smooth on one side from contact with the tool, are turned over and no fines are created. Where construction operations are indicated to occur within plant protection zones, the Contractor shall aerate surface soil, compacted during construction, from the drip line to no closer than 36 inches to tree trunks by the following method: Drill 2-inch diameter holes a minimum of 18 inches deep at 24 inches o.c. Backfill holes with Wamego Sand Company pea gravel. Top holes with 6” depth of topsoil.

2.9 INORGANIC SOIL AMENDMENTS

A. Elemental Sulfur: 90% sulfur, disintegrating pellets, produced by Fertilome – Voluntary Purchasing Group, Bonhomme, Texas, 75418, (903)583-9789.

B. Iron Sulfate: High Yield, 11% sulfur, 19% iron, trade name: "Copperas" produced by Fertilome – Voluntary Purchasing Group, Bonhomme, Texas, 75418, (903)583-9789.

2.10 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 (50%) percent of dry weight.
2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

B. Sphagnum Peat Moss – Shall be pulverized type of sphagnum peat with a pH of 3-4, and shall be 1-5% ash, 0.6-1.4%N.

C. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.

D. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.11 FERTILIZER

A. The grass (fescue only) starter fertilizer shall be a 10-18-22 slow release type with a minimum of 2.7% water insoluble nitrogen (WIN) and a minimum .6% iron. The second grass fertilizer applied shall be a 28-3-8 slow release type with a minimum of 8.1% WIN, 2.5% iron, .5% magnesium, .2% manganese, and .2% zinc.

B. The tree, shrub, and ground cover fertilizer shall be a 14-14-14 slow release type with a minimum of 3.2% WIN and 8.35% coated, slowly available, nitrogen (sulfur-coated).

C. The grass and tree/shrub fertilizer is available from United Horticultural Supply, 150 S. Main Street, Fremont, NE 68025-5697. The Concordia, KS office number is (785) 243-7248.

D. Additional fertilizer for pH modified soli (if required) shall be Green Garde slow release micronized iron available from Hummert International (785) 234-5652.

E. The Contractor shall submit sample labels for approval to the Owner prior to application.

F. The Contractor shall notify the Owner of application time at least 24 hours in advance.

2.12 MULCHES

A. Mulch for tree beds and tree/shrub beds shall be hardwood mulch an average of approximately 1-1/2" long, mixed in size. Mulch for ground cover beds shall be premium hardwood mulch, double ground, approximately 1 inch long, mixed in size. Mulch shall be fresh, clean, and free from soil, rocks, diseased material and foreign organic and non-organic matter. Samples are to be brought to the Owner for approval prior to installation.

B. Blown mulch shall consist of fresh, clean, and 95% weed free wheat straw.

2.13 TREE STABILIZATION MATERIALS

~~A. Tree anchors shall be made of high impact and shock resistant tenzaloy aluminum alloy. The anchor holding power for trees of three inch or less caliper shall be 300 pounds and its weight shall be one ounce. Holding power shall be 1100 pounds and anchor weight to be 4.5 ounces for trees of greater caliper than three inches.~~

~~B. Cable shall be 7x7 galvanized steel cable with white vinyl coating, which has a breaking strength of no less than 480 pounds for trees of three inch caliper or less and 1700 pounds for trees of greater than three inch caliper.~~

~~C. Tree collars shall be 12" long, made from .5ID x .062 wall PVC tubing with ultraviolet inhibitors.~~

~~D. Cable clamps shall be 1/16", zinc plated, U-bolt and clevis type.~~

~~E. Anchor shall be driven in with the anchor drive rod specified by the manufacturer.~~

~~F. Tree anchor kit for trees of three inch caliper or less shall be Duckbill Model 40 DTS-W, and tree anchor kit for trees between three and six inch caliper shall be Duckbill Model 68 DTS-W, or approved equal.~~

~~G.~~A. All deciduous and/or broadleaf trees of 8' (feet) height or more shall be staked.

~~H.~~B. The Contractor shall install durable, expandable, long lasting polyethylene tree guards at the base of all proposed deciduous trees located in the lawn areas. The guards shall be 7 to 10 inches in height and gray in color. The guards shall be the ArborGard Tree Truck Protector – AG 9-4 as sold by Deep Root Partners, L.P., 821 Langton St. Suite, San Francisco, CA 94103, (800) 458-7668, or approved equal.

~~I.~~C. Stakes and Guys:

1. A. All evergreen and deciduous trees shall be staked with 5-6 foot steel or 2x2 sound hardwood stakes. The stakes shall be ~~2x2 sound hardwood and~~ connected to the tree with two strands of twisted 12 gauge galvanized wire within a 2-ply reinforced rubber hose collar (approx. ½" I.D.). stakes shall be placed around drip line of the tree. The tree mulch bed shall come out 3-5 inches past the tree stakes.
2. Flexible Ties: Wide rubber or elastic bands or straps of length required to reach stakes or turnbuckles.
3. Guys and Tie Wires: ASTM A 641/A 641M, Class 1, galvanized-steel wire, 2-strand, twisted, 0.106 inch in diameter.
4. Hose Chafing Guards: Reinforced rubber or plastic hose at least 1/2 inch in diameter, black, cut to lengths required to protect tree trunks from damage.
5. Guy Cables: 5-strand, 3/16-inch- diameter, galvanized-steel cable, with zinc-coated turnbuckles, a minimum of 3 inches long, with two 3/8-inch galvanized eyebolts.
6. Flags: Standard surveyor's plastic flagging tape, white, 6 inches long.

~~J.~~D. Root-Ball Stabilization Materials:

1. Upright Stakes and Horizontal Hold-Down: Rough-sawn, sound, new hardwood or softwood, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated; stakes pointed at one end.
2. Wood Screws: ASME B18.6.1.
3. Proprietary Devices: Proprietary at- or below-grade stabilization system to secure each new planting by root ball; sized as indicated and per manufacturer's written recommendations.

    a. Products: Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:

        1) Border Concepts, Inc.; Tomahawk Tree Stabilizers.
        2) Foresight Products, LLC; Duckbill Rootball Fixing System.
        3) Tree Staple, Inc.; Tree Staples.

2.14 LANDSCAPE EDGINGS

A. Natural Spade Edging: See Plans

2.15 MISCELLANEOUS PRODUCTS

A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive exterior plants for compliance with requirements and conditions affecting installation and performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing exterior plants from damage caused by planting operations.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Architect's acceptance of layout before planting. Make minor adjustments as required.

D. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.

1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

E. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

3.3 PLANTING BED ESTABLISHMENT

A. Loosen subgrade of planting beds to a minimum depth of 8 inches. Remove stones, dirt clods larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

1. Spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.

a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.

2. Spread planting soil mix to a depth of 6 inches but not less than required to meet finish grades after natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

a. Spread approximately one-half the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil mix.

B. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

C. Before planting, restore planting beds if eroded or otherwise disturbed after finish grading.

3.4 EXCAVATION FOR TREES AND SHRUBS

A. Pits and Trenches: Excavate circular pits with sides sloped inward. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation.

1. Excavate approximately two times as wide as ball diameter for balled and burlapped stock.

B. Subsoil removed from excavations may be used as backfill.

C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.

D. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub pits.

3.5 TREE AND SHRUB PLANTING

A. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1.

B. Set balled and burlapped stock plumb and in center of pit or trench with top of root ball 2 inches above (2") adjacent finish grades.

1. Remove burlap and wire baskets from tops of root balls and partially from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
2. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.

C. Set container-grown stock plumb and in center of pit or trench with top of root ball 2 inches above (2") adjacent finish grades.

1. Carefully remove root ball from container without damaging root ball or plant.
2. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.

D. Organic Mulching: Apply 4-inch thickness of organic mulch extending 3-inch minimum from edge of trunk around trees. A mulch layer of between 2 and 3 inches is to surround ground cover plants. These thicknesses are expected after settling.

E. Inspect tree trunks for injury, improper pruning, and insect infestation.

3.6 TREE AND SHRUB PRUNING

A. Remove only dead, dying, or broken branches. Do not prune for shape.

B. Prune, thin, and shape trees and shrubs as directed by Architect.

C. Prune, thin, and shape trees and shrubs according to standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise indicated by Architect, do not cut tree leaders; remove only injured or dead branches from flowering trees. Prune shrubs to retain natural character.

3.7 TREE STABILIZATION

A. Trunk Stabilization: Where indicated unless otherwise indicated, provide trunk stabilization as follows:

1. Upright Staking and Tying: Stake trees of 2- through 5-inch caliper. Stake trees of less than 2-inch caliper only as required to prevent wind tip-out. Use a minimum of 2 stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend dimension shown at least 72 inches one third of trunk height (1/3) above grade. Set vertical stakes and space to avoid penetrating root balls or root masses.
2. Use 2 stakes for trees up to 12 feet high and 2-1/2 inches or less in caliper; 3 stakes for trees less than 14 feet high and up to 4 inches in caliper. Space stakes equally around trees.
3. Support trees with bands of flexible ties at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.
4. Support trees with two strands of tie wire encased in hose sections at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.

B. Guying and Staking: Guy and stake trees exceeding 14 feet in height and more than 3 inches in caliper unless otherwise indicated. Securely attach no fewer than 3 guys to stakes 30 inches long, driven to grade.

1. For trees more than 6 inches in caliper, anchor guys to pressure-preservative-treated deadmen 8 inches in diameter and 48 inches long buried at least 36 inches below grade. Provide turnbuckle compression spring for each guy wire and tighten securely.
2. Support trees with bands of flexible ties at contact points with tree trunk and reaching to turnbuckle compression spring. Allow enough slack to avoid rigid restraint of tree.
3. Support trees with strands of cable or multiple strands of tie wire encased in hose sections at contact points with tree trunk and reaching to turnbuckle compression spring. Allow enough slack to avoid rigid restraint of tree.
4. Attach flags to each guy wire, 30 inches (760 mm) above finish grade.
5. Paint turnbuckles compression springs with luminescent white paint.

6. Trees are to be able to sway 3 to 4 inches after staking.

C. Root-Ball Stabilization: Where indicated unless otherwise indicated, provide at- or below-grade stabilization system to secure each new planting by the root ball.

1. Wood Hold-Down Method: Horizontal wood hold-down stake placed across top of root ball and screwed at each end to a vertical stake against side of root ball and driven into subsoil.

a. Provide stakes of length required to penetrate at least dimension shown 18 inches (18") below bottom of backfilled excavation. Saw stakes off at horizontal stake.
b. Install screws through horizontal hold-down and penetrating at least 1 inch into stakes. Pre drill holes if necessary to prevent splitting wood.
c. Install second set of stakes on other side of root trunk for larger trees as indicated.

2. Proprietary System: Provide root-ball stabilization system sized and positioned as indicated recommended by product manufacturer, and according to manufacturer's written instructions.

3.8 GROUND COVER AND PLANT PLANTING

A. Set out and space ground cover and plants per plans and details.

B. Dig holes large enough to allow spreading of roots and backfill with planting soil.

C. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.

D. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

E. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.9 PLANTING BED MULCHING

A. Mulch backfilled surfaces of planting beds and other areas indicated. Provide mulch ring around trees in lawn areas. See plans and details.

1. Organic Mulch: Apply 4-inch average thickness of organic mulch, and finish level with adjacent finish grades. Do not place mulch against plant stems.

3.10 PLANT GUARANTEE AND MAINTENANCE REQUIREMENTS

A. The Contractor shall remedy and make good all defective workmanship and material and pay for any damage to other work resulting therefrom, which appear within a period of one year from date of Substantial Completion, providing such defects are not clearly due to abuse or misuse by the Owner. The Owner will give notice of observed defects with reasonable promptness. Guarantee on work executed after certified date of Substantial Completion will begin on the date when such work is inspected and approved by the owner.

B. At the end of the guarantee period, inspection will be made by the Owner upon written notice requisition such inspection submitted by the Contractor at least 10 days prior to the anticipated date. Any and all parts which prove defective in material or workmanship shall be replaced by the Contractor at their expense.

C. During construction time up to the date of Substantial Completion as approved by the Owner, any plants missing due to theft or vandalism shall be replaced by the Contractor at their expense as soon as conditions permit during the normal planting season. Normal fall planting season shall be from September 1 to October 31 for seeding, sodding, shrub, perennial, bulb and groundcover planting in the Fall. Tree planting may continue until December 15, weather permitting. Normal spring planting season shall begin when weather permits or soil conditions are suitable until May 24.

D. Any plant material required under this Contract that is not in satisfactory vigor and growth at the end of the guarantee period for any reason except hail, flood, tornado, fire, earthquake, and/or Owner damage, as determined by the Owner, shall be removed from the site. These plants and any plants missing because of the Contractor's negligence shall be replaced by the Contractor at their expense as soon as conditions permit during the normal planting season. In case of a rejected plant, the Contractor may elect, upon agreement by the Owner, to allow such plant to remain through another complete growing season. The rejected plant, if found not to be in healthy or vigorous growing condition after another growing season, shall be replaced by the Contractor, in a

larger than specified size if necessary, to match other plants in a particular bed or planting group planted under this contract.

E. All replacements shall be plants of the same kind as specified in the plant list. They shall be furnished and planted as specified under planting of trees, shrubs, perennials, bulbs, and groundcovers and the cost shall be borne by the Contractor.

3.11 CLEANUP AND PROTECTION

A. During planting, keep adjacent paving and construction clean and work area in an orderly condition.

B. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

3.12 DISPOSAL

A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 329300

November 20th, 2018

BVSD - VALLEY PARK ELEMENTARY SCHOOL ADDITION
PROJECT VPE-1901

ADDENDUM NO. 1

CONTRACT BIDDERS:

Enclosed is **Addendum No. 1** to the above referenced contract documents. Please execute and attach this **Addendum No. 1** to your bid sheets.

If you have any questions, please contact the undersigned.

OLSSON

Seth Reece, RLA
PROJECT MANAGER

7301 West 133rd Street, Suite 200
Overland Park, KS 66213-4750

TEL 913.381.1170
FAX 913.381.1174

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BVSD – VALLEY PARK ELEMENTARY SCHOOL ADDITION
12301 Lamar Ave.
Project VPE-1901

ADDENDUM NO. 1

PROJECT MANUAL

Clarification Items:

Item 1: C102 – Demolition Plan

- Note added for picnic tables to be removed.
- Note added for picnic tables to be relocated.

Item 2: C200 – Dimension Plan

- Stoop on northern most door has been removed.
- Trench drain has been added along the building foundation. The trench drain will connect to proposed storm sewer.

Item 3: C700 – Erosion Control Plan

- Construction entrance location has been updated.
- The Staging/Stockpile location and limits of disturbance have been updated.

END OF ADDENDUM 1

HENDERSON ENGINEERS INC

bentonville dallas houston kansas city las vegas
los angeles new york philadelphia phoenix tampa

ADDENDUM 01

NOVEMBER 20, 2018

ISSUED BY
Henderson Engineers, Inc.
8345 Lenexa Dr.
Lenexa, KS 66214

ISSUED FOR
Hollis + Miller
1828 Walnut Street Suite 922
Kansas City, MO 64108

NOTICE TO ALL BIDDERS FOR THE
Valley Park Elementary

You are instructed to read and to note the following described changes, corrections, clarifications, omissions, deletions, additions, approvals, and statements pertinent to the Contract Bid and Construction Documents.

Addendum 01 is part of the Contract Bid and Construction Documents and shall govern in the performance of the Work.

REVISIONS

SPECIFICATION:

A. Mechanical
   1) Revised 230500 Common Work Results for Mechanical
   2) Revised 230923 Direct Digital Control for HVAC
   3) Added 230593 Testing, Adjusting and Balancing for HVAC

B. Plumbing
   1) Revised 220500 Common Work Results for Plumbing

C. Technology
   1) Revised 275116 Public Address System
   2) Removed 275313 Wireless Clock System

SHEETS:

Mechanical

1. M101 – HVAC LEVEL 1 PLAN – AREA A
   A. Added UFPB-1 to serve Collab A101.
   B. Revised diffuser type in Collab A101.
   C. Added mechanical keynotes M24, M37, M38, M39, and M40.
   D. Revised mechanical keynote M31.
   E. Revised supply ductwork routing to avoid passing through plenum in Collab A101.
2. M201A – PIPING LEVEL 1 PLAN – AREA A
   A. Revised thermostat zoning of Flex area.
   B. Revised thermostat annotation.
   C. Added underfloor plenum water sensors.

   D. Added UFPB-1 to serve Collab A101.
   E. Added Mechanical keynote M15, M17, and M18
3. M201B – PIPING LEVEL 1 PLAN – AREA B
   A. Added mechanical keynote M7.
4. M400 – MECHANICAL DETAILS
   A. Added Typical Underfloor Duct Installation Detail.
5. M500 – MECHANICAL SCHEDULES
   A. Added Underfloor Fan-Powered Box Schedule.
   B. Added DD-2 to Grille, Register and Diffuser Schedule.
6. M600 – MECHANICAL CONTROLS
   A. Added Controls Schematic.
7. M601 – MECHANICAL CONTROLS
   A. Revised Chilled Water Plant Schematic, Points List, Staging Matrix and Sequence of Operations.
8. M602 – MECHANICAL CONTROLS
   A. Revised Air Handling Points List.
   B. Revised Air Handler Sequence of Operations.
9. M603 – MECHANICAL CONTROLS
   A. Added Building Relief Fan Schematic, Points List and Sequence of Operations.
   B. Added Underfloor Fan-Powered Box Schematic, Points List and Sequence of Operations.
   C. Revised Electric Cabinet Unit Heater Schematic and Points List and Sequence of Operations.
   D. Revised Split System Room AC Units Schematic and Points List and Sequence of Operations.
   E. Revised Terminal Heating Units (Baseboard) Schematic and Points List and Sequence of Operations.
   F. Revised Variable Air Volume Floor Diffuser Balancing Schedule.

Plumbing

1. P100 – PLUMBING CRAWL SPACE LEVEL PLAN
   A. Revised Invert elevations.

Technology

2. TN101A – TECHNOLOGY LEVEL 1 PLAN – AREA A
   A. Removed wireless clocks from plan.
   B. Removed Technology Keynote T18.

VALLEY PARK ELEMENTARY SCHOOL ADDITION

Blue Valley School District

12301 Lamar Ave.
Leawood, KS 66209

Project Number: VPE-1901

Construction Documents

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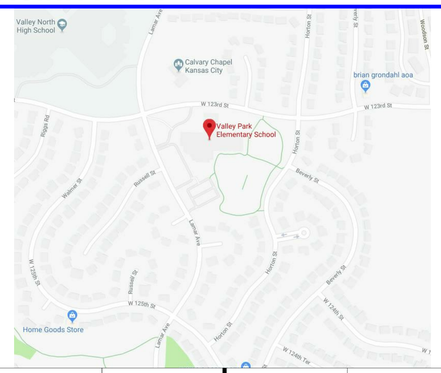
VICINITY MAP



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Construction Documents

Valley Park Elementary School Addition
Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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11/13/18

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G000

COVER SHEET

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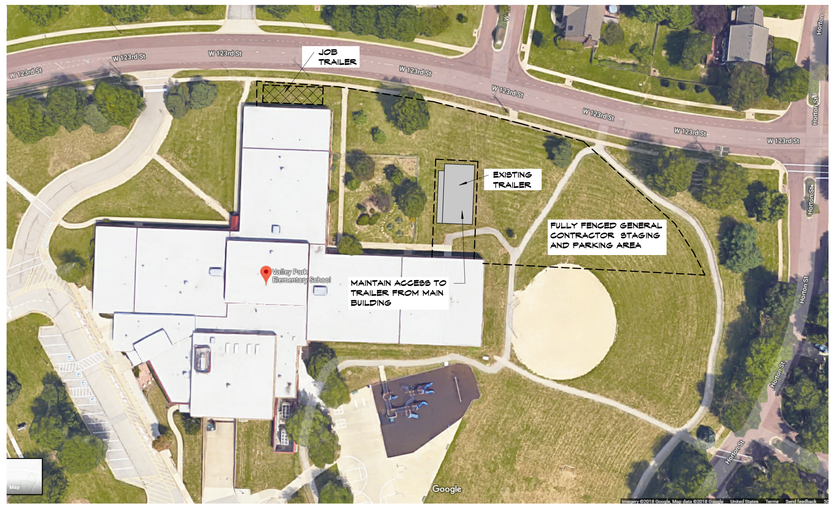
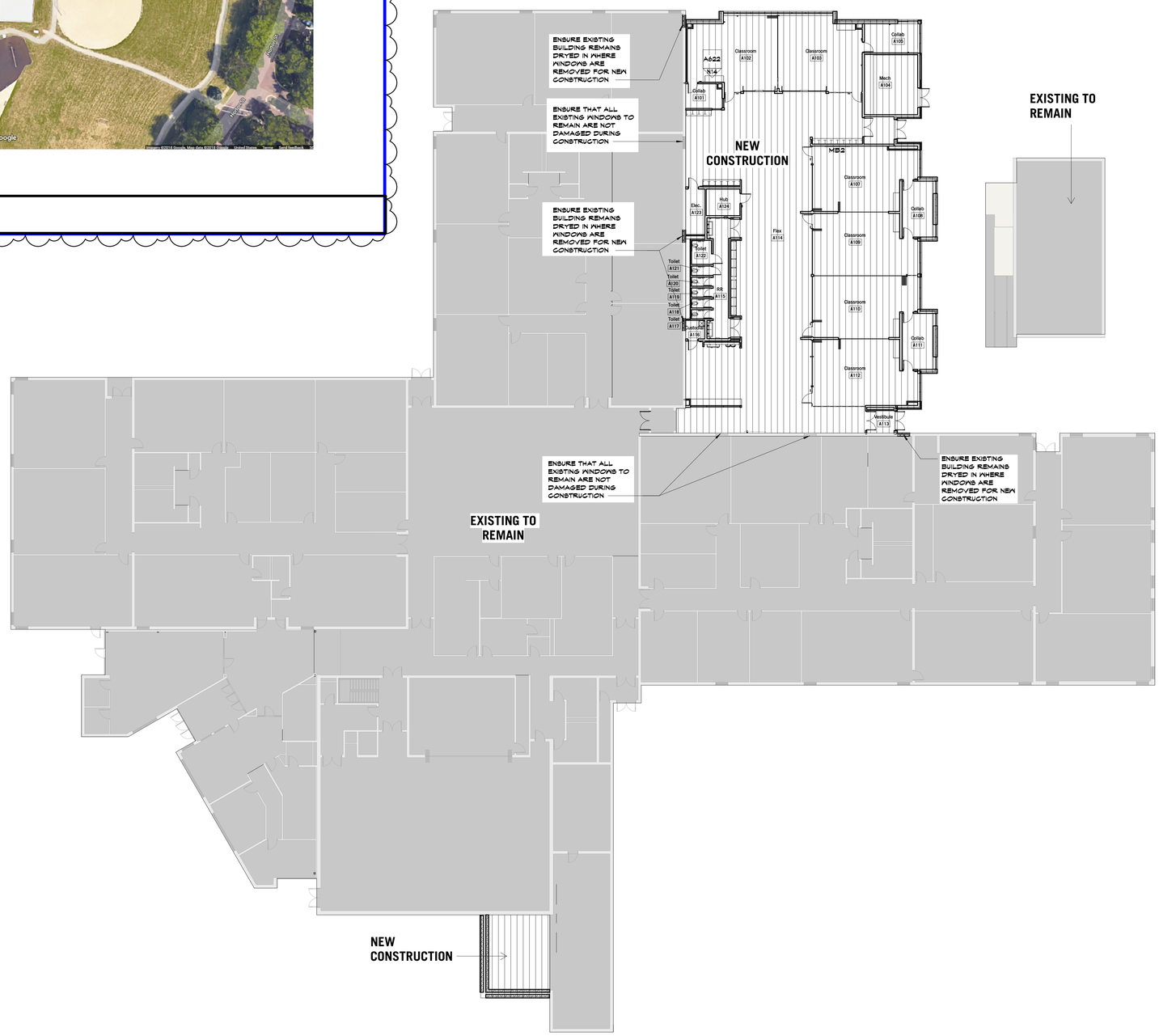


L1 | Scale 1/4" = 1'-0" | Site Layout



A1 | Scale 1/16" = 1'-0" | Overall Temporary Conditions Plan

SHEET KEYNOTE LEGEND

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TEMPORARY CONDITIONS PLAN

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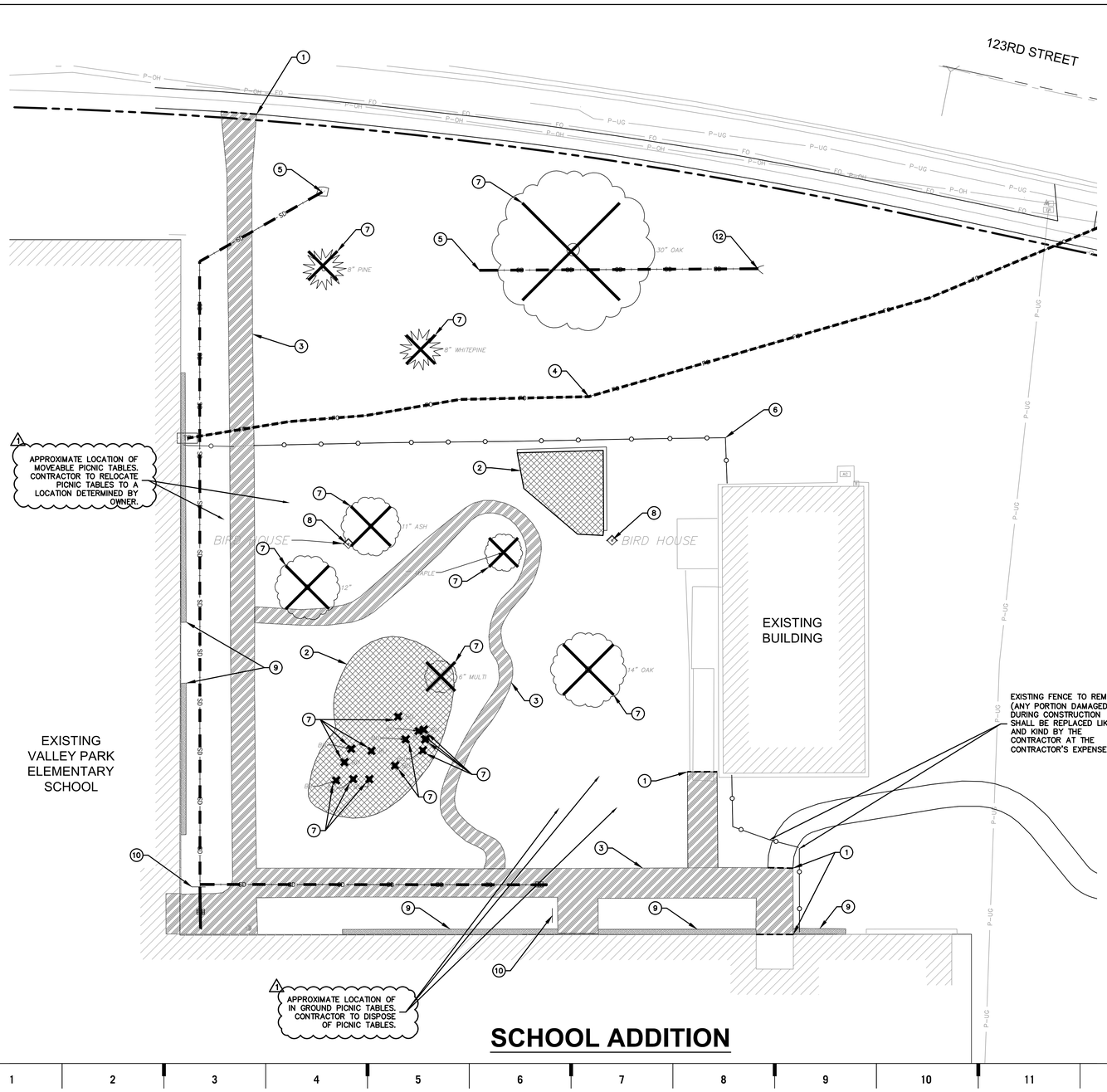
KEY NOTE LEGEND	
1	SAWCUT EXISTING PAVEMENT.
2	REMOVE EXISTING LANDSCAPING.
3	REMOVE EXISTING SIDEWALK.
4	REMOVE EXISTING FIBER OPTIC LINE.
5	REMOVE EXISTING STORM SEWER.
6	REMOVE EXISTING FENCING AND SALVAGE TO OWNER. FENCE TO BE REINSTALLED AFTER CONSTRUCTION.
7	REMOVE EXISTING TREE OR SHRUB (INCLUDING STUMPS AND ROOTS AS NOTED IN SPECIFICATIONS).
8	REMOVE EXISTING BIRDHOUSE.
9	REMOVE EXISTING MOW STRIP.
10	REMOVE EXISTING HAND RAIL.
11	REMOVE EXISTING WALL.
12	EXISTING 12" RCP OUTFALL IS ASSUMED TO BE ABANDONED. CONTRACTOR TO VERIFY. CONTACT OWNER'S REPRESENTATIVE IF REVISIONS NEED TO BE MADE TO THE PROPOSED DRAINAGE SYSTEM.



SCHOOL ADDITION

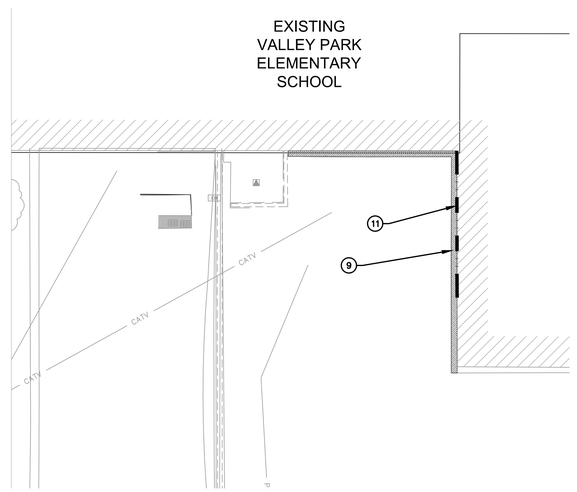
LEGEND

PROPERTY LINE

SURROUNDING PROPERTY LINES

DEMOLITION NOTES

1. CONTRACTOR TO PRESERVE ALL SURVEY CONTROL.
2. CONTRACTOR TO COMPLETE DEMOLITION PER THE INTENT OF THESE PLANS AND THAT NECESSARY FOR NEW GRADING PER THESE PLANS.
3. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE ENGINEER MAKES NO GUARANTEES THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THIS INCLUDES PRIVATE AND PUBLIC UTILITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL PUBLIC AND PRIVATE UTILITIES AND RELOCATE AS NECESSARY. CONTRACTOR SHALL CONTACT KANSAS ONE CALL AT 1-800-344-7233 AND BLUE VALLEY USD #229 AT 913-239-4090 IN ADVANCE OF ANY EXCAVATION TO COORDINATE UTILITY LOCATIONS.
4. CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER EXISTING LINES NOT OF RECORD OR SHOWN ON THESE PLANS. CONTRACTOR SHALL REPAIR ALL SHOWN UTILITIES DAMAGED AT CONTRACTOR'S EXPENSE.
5. ALL ITEMS REMOVED SHALL BE LEGALLY DISPOSED OFF SITE BY THE CONTRACTOR.
6. DO NOT DISRUPT UTILITY SERVICE TO ADJACENT BUSINESSES OR RESIDENCES WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER OR OWNER.
7. DO NOT DISRUPT TRAFFIC ON ADJACENT PUBLIC STREETS WITHOUT PRIOR WRITTEN APPROVAL BY THE CITY.
8. ALL SIDEWALK, CURBS AND PAVEMENT TO REMAIN SHALL BE PROTECTED IN PLACE INCLUDING PROTECTION FROM DAMAGE CAUSED BY REMOVAL OF ABUTTING PAVEMENT. CONTRACTOR SHALL SAW CUT WHERE NECESSARY.
9. CONTRACTOR SHALL GIVE NOTICE TO ALL UTILITY COMPANIES REGARDING DISCONNECTION, DEMOLITION, AND REMOVAL OF SERVICE LINES. CAP ALL LINES BEFORE PROCEEDING WITH WORK ON THIS CONTRACT.
10. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY CONCERNING PORTIONS OF WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANIES WORK FORCE AND ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES.
11. CONTRACTOR SHALL PROTECT THE PUBLIC AT ALL TIME WITH FENCING, BARRICADES, ENCLOSURES, ETC. TO THE BEST PRACTICES AND AS APPROVED BY THE ENGINEER AND THE OWNER.
12. DAMAGE TO EXISTING CURB, ASPHALT, CONCRETE PAVING OR STORM STRUCTURES AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPLACED AND/OR REPAIRED AT CONTRACTOR'S EXPENSE. ALL REPLACEMENT SHALL BE JOINT TO JOINT. NO PARTIAL REPLACEMENT WILL BE ALLOWED.
13. CONTRACTOR TO FIELD VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THESE PLANS.
14. SEE UTILITY PLANS FOR ADDITIONAL INFORMATION.
15. SEE ELECTRICAL PLANS FOR EXISTING LIGHT & ELECTRICAL EQUIPMENT REMOVAL AND RELOCATION.
16. AT END OF JOB ALL NEW CONCRETE PAVEMENT SHALL LOOK NEW. ANY CRACKS IN CONCRETE PAVEMENT WILL NOT BE ACCEPTED.
17. ALL UTILITY DEMOLITION SHALL BE COORDINATED WITH BLUE VALLEY.



MECHANICAL YARD

N

0' 5' 10' 20'
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Construction Documents

Valley Park Elementary School Addition
Blue Valley School District
12301 Lamar Ave.
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Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	ADDENDUM 01	11.20.2018

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C102

DEMOLITION PLAN

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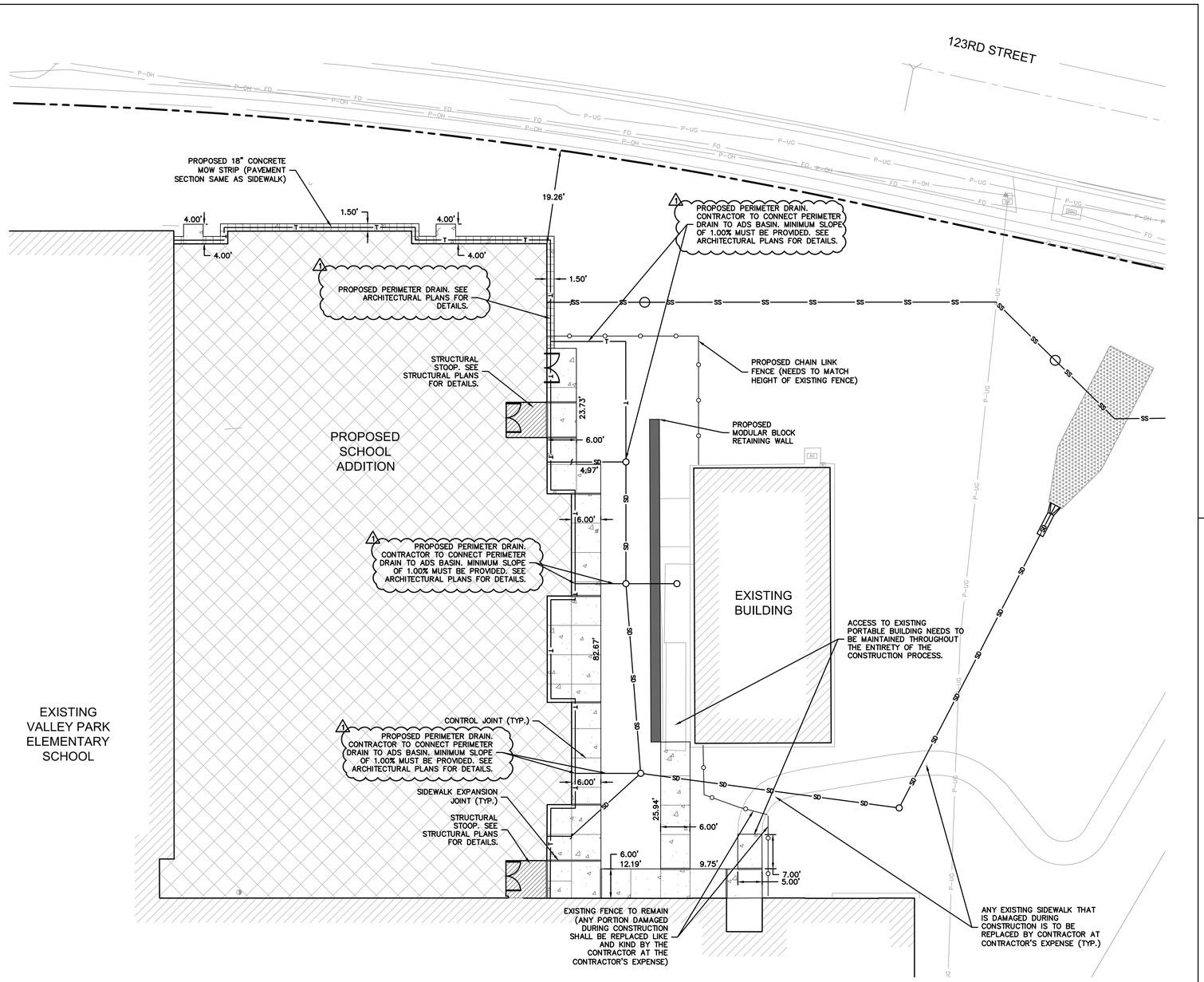
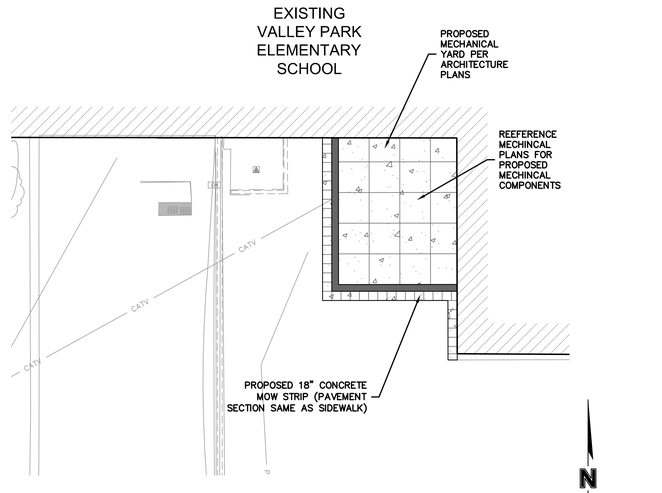


SCHOOL ADDITION

LEGEND

- PROPERTY LINE
- SURROUNDING PROPERTY LINES
- SIDEWALK EXPANSION JOINT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED STRUCTURAL STOOP

NOTE:
1) ALL MECHANICAL CONCRETE SLABS SHALL BE 5" THICK.
2) ALL SIDEWALKS SHALL BE 4" THICK CONCRETE. SECTION ON 4" AB-3 COMPACTED BASE. REFERENCE DETAIL SHEETS FOR MORE INFORMATION.



MECHANICAL YARD

N

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Construction Documents

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Blue Valley School District
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Leawood, KS 66209
Project Number: VPE-1901

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DIMENSION PLAN

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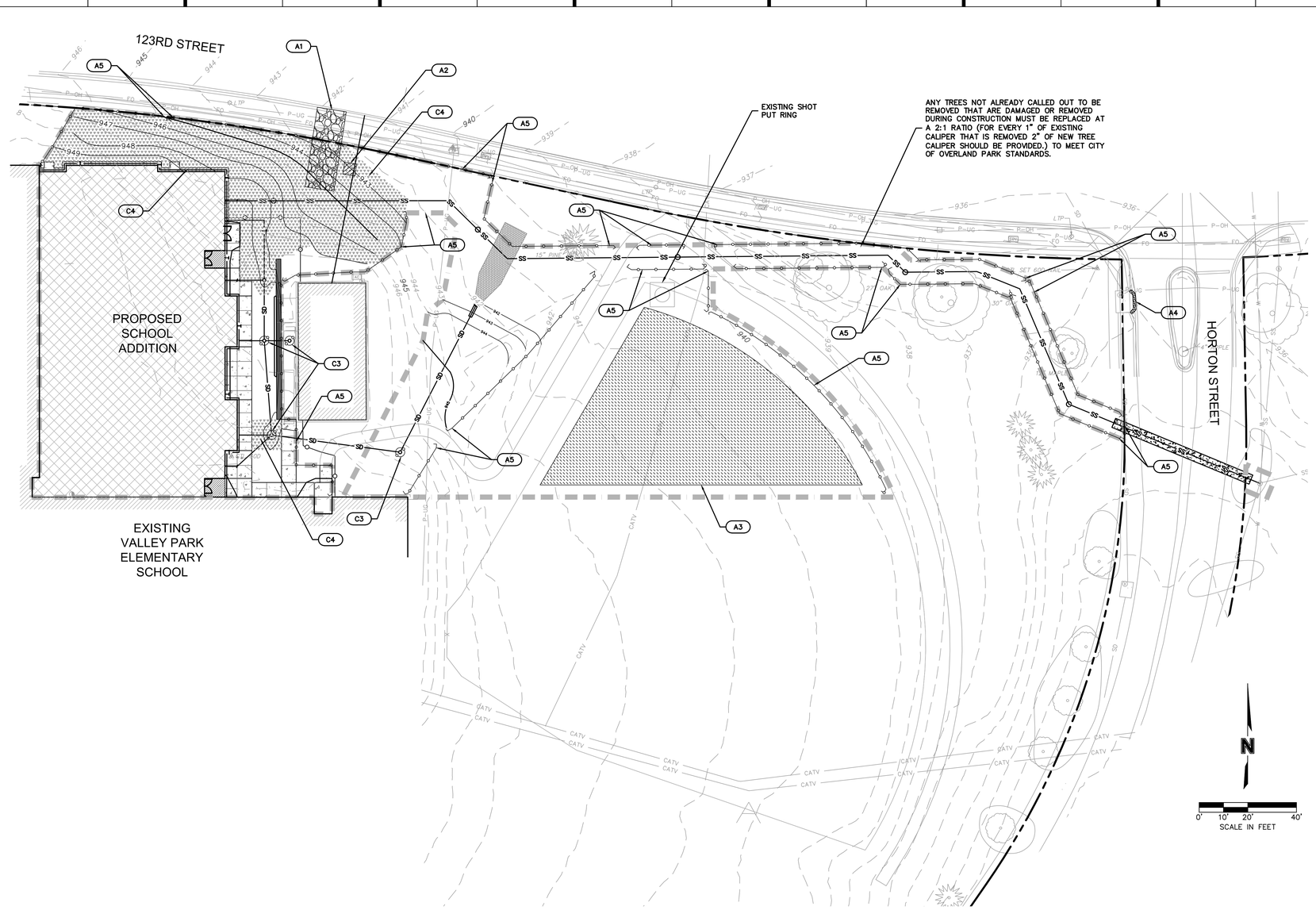
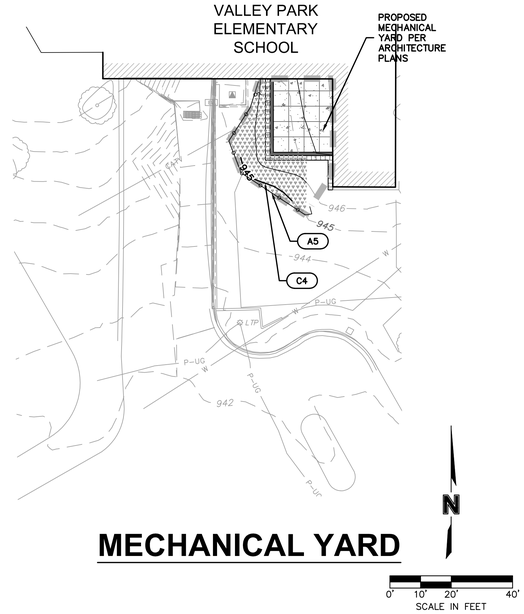
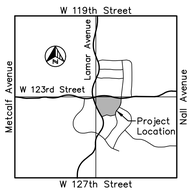


SCHOOL ADDITION



MECHANICAL YARD

EROSION CONTROL STAGING CHART				
PROJECT STAGE	EROSION CONTROL BMP REFERENCE NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
A – PRE-CONSTRUCTION:	A1	TEMPORARY CONSTRUCTION ENTRANCE	C	INSTALL AS INDICATED ON PLANS
	A2	TEMPORARY CONCRETE WASHOUT	C	INSTALL AS INDICATED ON PLANS
	A3	TEMPORARY STAGING/STOCKPILE AREA	C	INSTALL AS INDICATED ON PLANS
	A4	EXISTING STORM PROTECTION (GRAVEL FILTER BAGS – CONDITION B)	C	INSTALL AS INDICATED ON PLANS
	A5	TEMPORARY SILT FENCE	C	INSTALL AS INDICATED ON PLANS
	A6	TEMPORARY TREE PROTECTION	C	INSTALL AS INDICATED ON LANDSCAPE PLANS
B – CLEARING AND MASS:	B1	NOT USED		
C – CONSTRUCTION: BUILDING AND UTILITIES	C1	NOT USED		
	C2	INTERMEDIATE SILT FENCE	C	INSTALL AS NEEDED
	C3	TEMPORARY LANDSCAPE DRAIN PROTECTION	C	INSTALL AS INDICATED ON PLANS
	C4	TEMPORARY SLOPE STABILIZATION (EROSION CONTROL BLANKET)	C	INSTALL AS INDICATED ON PLANS
D – POST CONSTRUCTION: FINAL STABILIZATION	D1	REPLACE TOP SOIL, SEED MULCH, SOD, LANDSCAPE	N/A	ESTABLISH PERENNIAL VEGETATION WITH A 70% DENSITY OVER 100% OF DISTURBED AREA. REFERENCE LANDSCAPE PLAN FOR DETAILS.



Section 20-T13S-R25E
VICINITY MAP
Scale: 1" = 2000'

Kansas 811
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LEGEND

- PROPERTY LINE
- 999 EXISTING CONTOUR
- 999 PROPOSED CONTOUR
- SEDIMENT FENCE
- LIMITS OF DISTURBANCE (0.92 ACRES)
- STABILIZATION. "LANDLOK (S2)" (EROSION CONTROL BLANKET) SHALL BE USED OR APPROVED EQUAL. CONTACTOR TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL. SEED WITH PERENNIAL SEEDING TO MEET SWPPP REQUIREMENTS. INSTALL PER DETAIL AND MANUFACTURER RECOMMENDATIONS.
- GRAVEL FILTER BAGS
- TEMPORARY CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT
- STAGING/STOCKPILE AREA
- XX EROSION CONTROL REFERENCE NUMBER
- TEMPORARY AREA INLET OR LANDSCAPE DRAIN PROTECTION (REFERENCE STAGING CHART)

NOTE:

ANY AREAS DISTURBED DURING CONSTRUCTION INCLUDING STAGING/STOCKPILE AREAS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. THIS INCLUDES SODDING ALL DISTURBED AREAS, REPAIRING ANY DAMAGED CONCRETE, AND REPLACING ANY PORTION OF THE BASEBALL FIELD THAT IS DISTURBED.

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EROSION CONTROL PLAN

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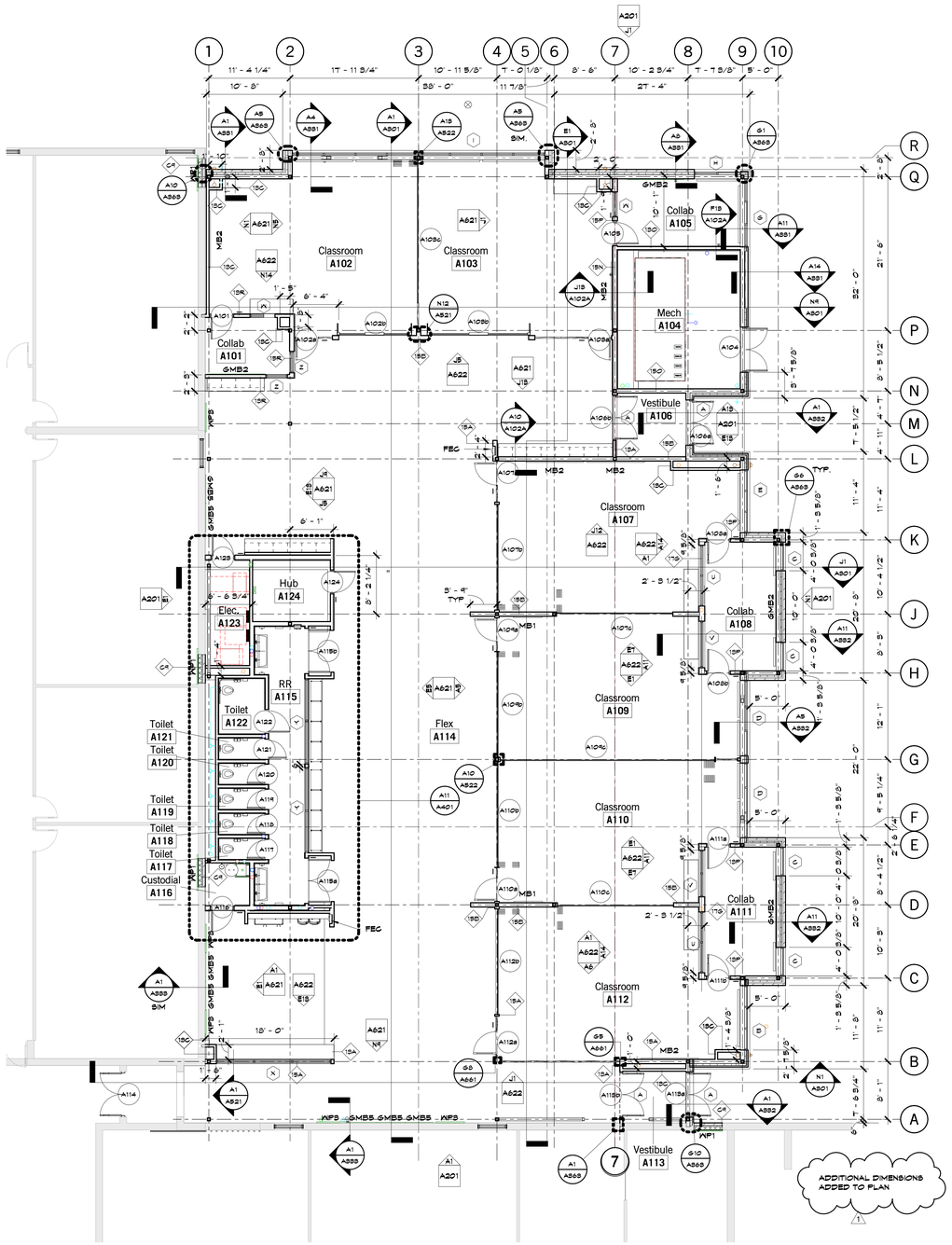
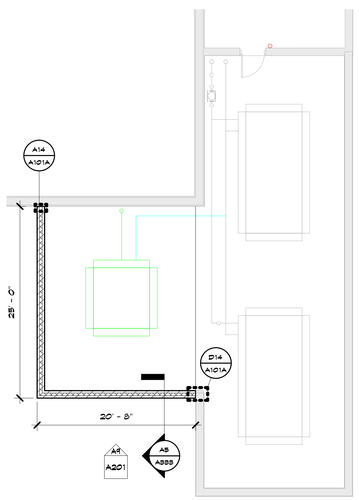
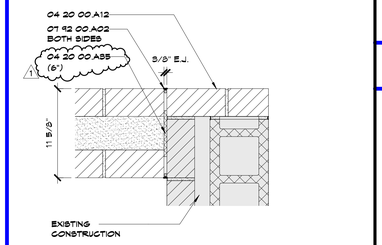
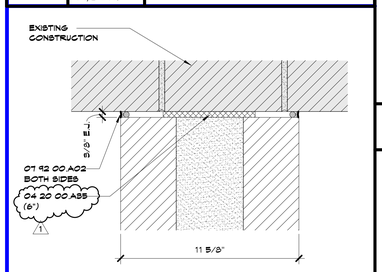








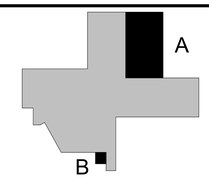
SHEET KEYNOTE LEGEND

04 20 00 A12	FACE BRICK
04 20 00 A55	COMPRESSIBLE FILLERS
07 92 00 A02	SEALANT W/BACKER ROD

SHEET NOTES

1. REFER TO SHEET G000 FOR SHEET INDEX
2. DO NOT SCALE THIS DRAWING
3. INTERIOR DIMENSIONS ARE TO THE FOLLOWING, UNLESS NOTED OTHERWISE:
   A. TO FACE OF STUD
   B. TO FACE OF MASONRY UNIT
   C. TO FACE OF DOOR AND WINDOW ROUGH OPENINGS
4. EXTERIOR DIMENSIONS ARE TO FACE OF BRICK
5. COORDINATE LOCATIONS WHERE BACKING REQUIRED FOR WALL HUNG CASEWORK, MARKERBOARDS, AND TECHNOLOGY
6. MB (MARKERBOARD) & GMB (GLASS MARKERBOARD) DESIGNATIONS PROVIDE LOCATIONS AND TYPES; RE: SPECIFICATION FOR MORE INFORMATION.
7. COORDINATE WALL REPAIR AND INSTALLATION OF NEW DOORS AND WINDOWS WITH DEMOLITION SHEETS
8. COORDINATE FINISHES TO REMAIN WITH DEMOLITION SHEET

KEY PLAN



A1 Scale 1/8" = 1'-0" — Floor Plan - Level 1 - Area A

A11 Scale 1/8" = 1'-0" — Chiller Floor Plan - Level 1 - Area B

D14 Scale 1 1/2" = 1'-0" — Plan Detail @ Chiller Yard Wall Corner

A14 Scale 3" = 1'-0" — Plan Detail @ Expansion Joint

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Construction Documents

Valley Park Elementary School Addition
Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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A101A

FLOOR PLAN - AREA A - LEVEL 1

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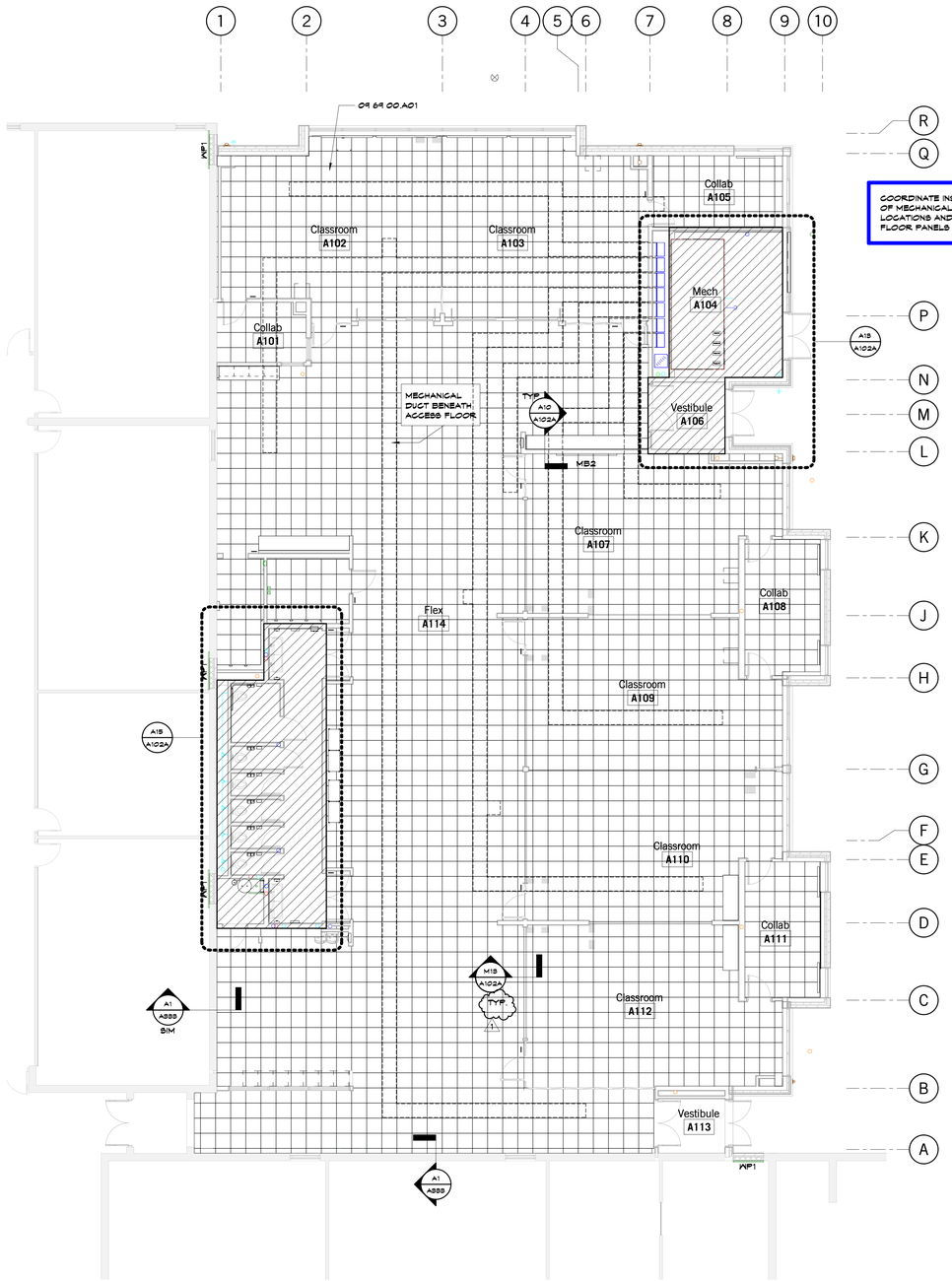
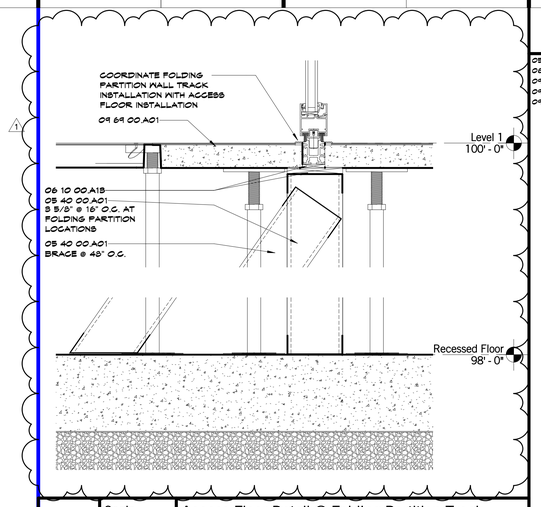
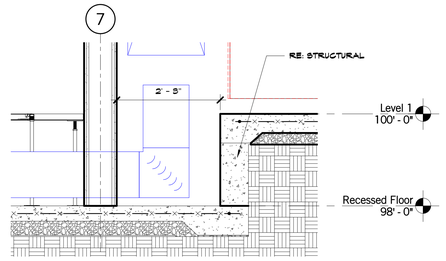


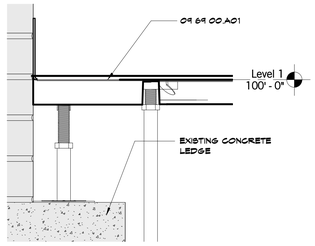
A1 Scale 1/8" = 1'-0" — Floor Plan - Access Floor - Area A



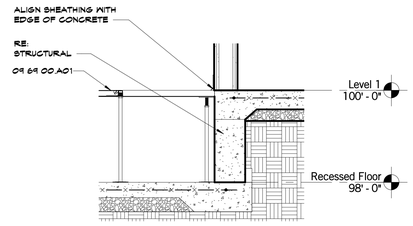
M13 Scale 3" = 1'-0" — Access Floor Detail @ Folding Partition Track



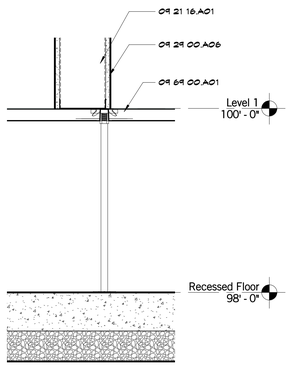
J13 Scale 3/4" = 1'-0" — Wall Section @ Raised Slab Turndown & Mech.



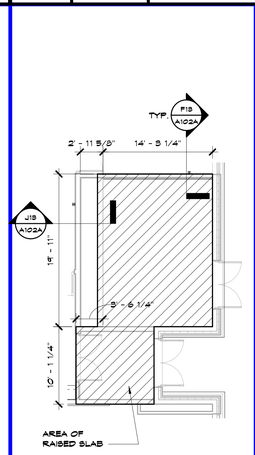
F10 Scale 3" = 1'-0" — Access Flooring Detail @ Existing Wall



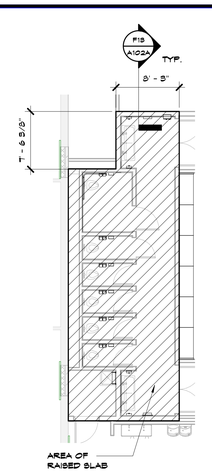
F13 Scale 3/4" = 1'-0" — Wall Section @ Raised Slab Turndown



A10 Scale 1 1/2" = 1'-0" — Interior Gyp. Wall Detail @ Access Floor



A13 Scale 1/8" = 1'-0" — Raised Slab Area

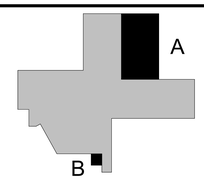


A15 Scale 1/8" = 1'-0" — Raised Slab Area

SHEET KEYNOTE LEGEND

05 40 00 A01	COLD-FORMED METAL FRAMING
06 10 00 A1B	WOOD BLOCKING/NAILERS
09 21 16 A01	NON-STRUCTURAL FRAMING
09 29 00 A06	MOLD AND MOISTURE RESISTANT GYPSUM BOARD
09 69 00 A01	ACCESS FLOORING

KEY PLAN



ACCESS FLOOR & RAISED SLAB PLAN - AREA A

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A102A

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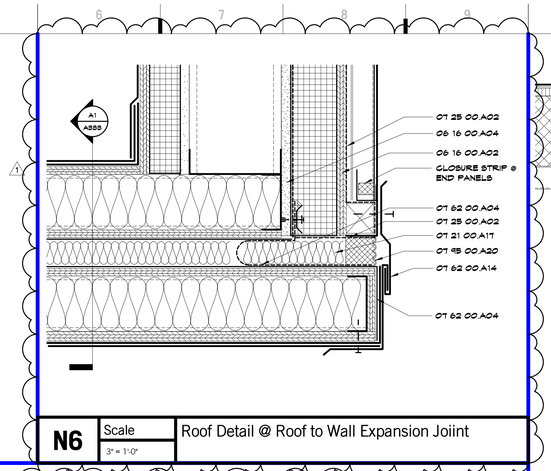
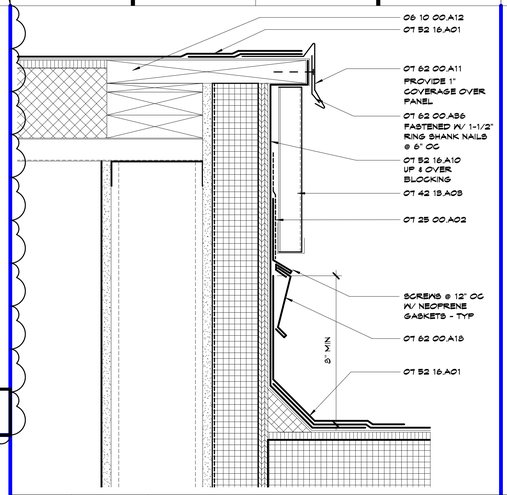
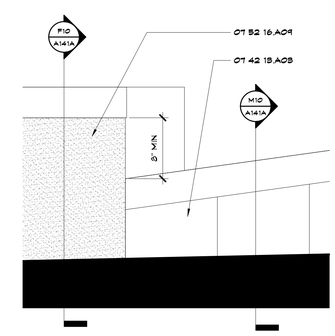


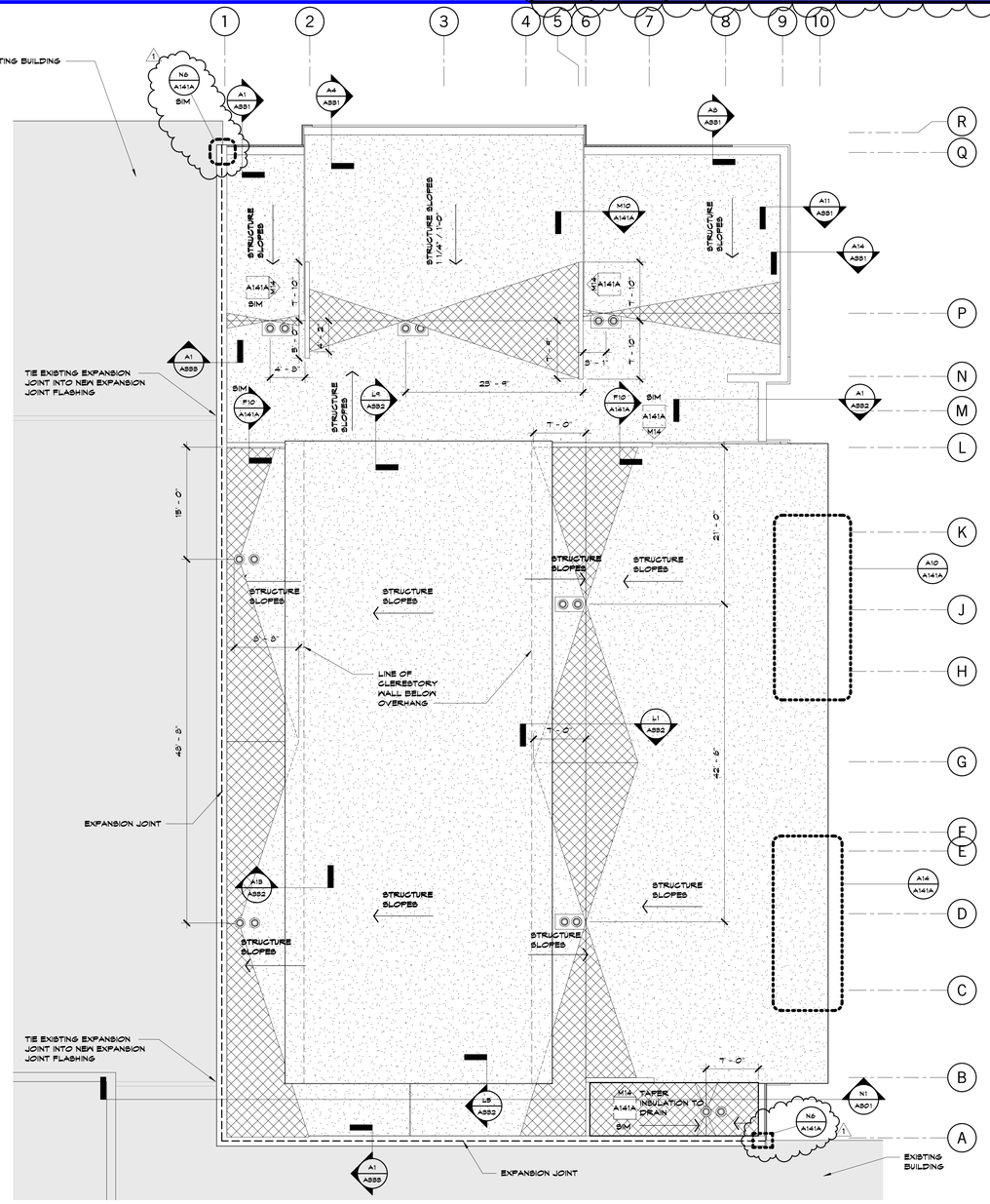
N6 | Scale 3" = 1'-0" | Roof Detail @ Roof to Wall Expansion Joiint



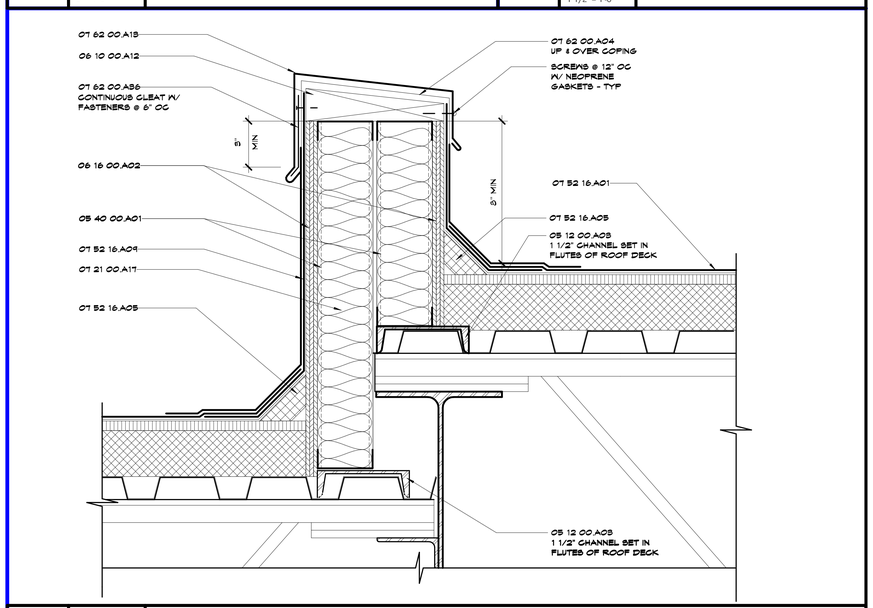
M10 | Scale 3" = 1'-0" | Roof Detail @ Gravel Stop Edge



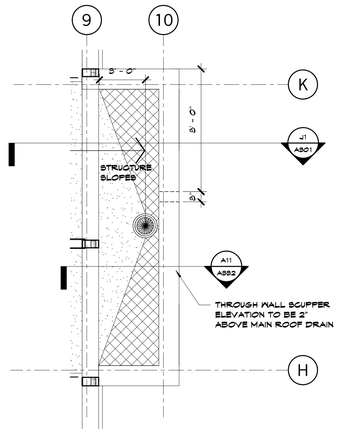
M14 | Scale 1 1/2" = 1'-0" | Elevation @ Sloped Roof to Curb Transition



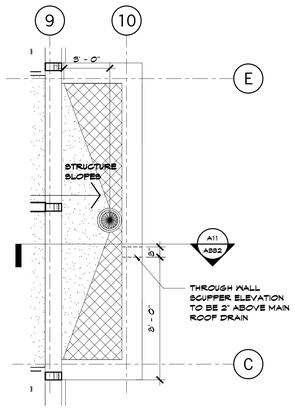
A1 | Scale 1/8" = 1'-0" | Roof Plan - Area A



F10 | Scale 3" = 1'-0" | Roof Height Transition



A10 | Scale 1/4" = 1'-0" | Roof Plan @ Collab North



A14 | Scale 1/4" = 1'-0" | Roof Plan @ Collab South

SHEET KEYNOTE LEGEND

05 12 00.A08	CHANNEL
05 40 00.A01	COLD-FORMED METAL FRAMING
06 10 00.A12	PRESERVATIVE TREATED WOOD BLOCKING/NAILERS
06 16 00.A02	FIRE-RETARDANT TREATED PLYWOOD
06 16 00.A04	GLASS-MAT GYPSUM WALL SHEATHING
07 21 00.A17	MINERAL WOOL
07 25 00.A02	SELF-ADHERING WEATHER BARRIERS
07 42 13.A08	CONCEALED FASTENER METAL WALL PANELS
07 52 16.A01	MODIFIED BITUMINOUS ROOFING SYSTEM
07 52 16.A05	INSULATION CANT STRIPS
07 52 16.A09	BASE FLASHING
07 52 16.A10	VERTICAL WALL FLASHING (MODIFIED BITUMINOUS)
07 62 00.A04	FLEXIBLE MEMBRANE CLOSURE
07 62 00.A11	GRAVEL STOP
07 62 00.A18	COPING
07 62 00.A14	ROOF TO ROOF EXPANSION JOINT COVER
07 62 00.A18	COUNTER FLASHING
07 62 00.A06	CLEAT
07 15 00.A20	EXTERIOR PRE-FORMED CELLULAR FOAM

SHEET NOTES

1. REFER TO PLUMBING DRAWINGS FOR ROOF DRAIN DETAILS
2. REFER TO MECHANICAL DRAWINGS FOR ROOF MOUNTED EQUIPMENT AND CURBS
3. REFER TO PLUMBING DRAWINGS FOR EXPOSED GAS PIPING AND SUPPORTS

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A141A

ROOF PLAN - AREA A

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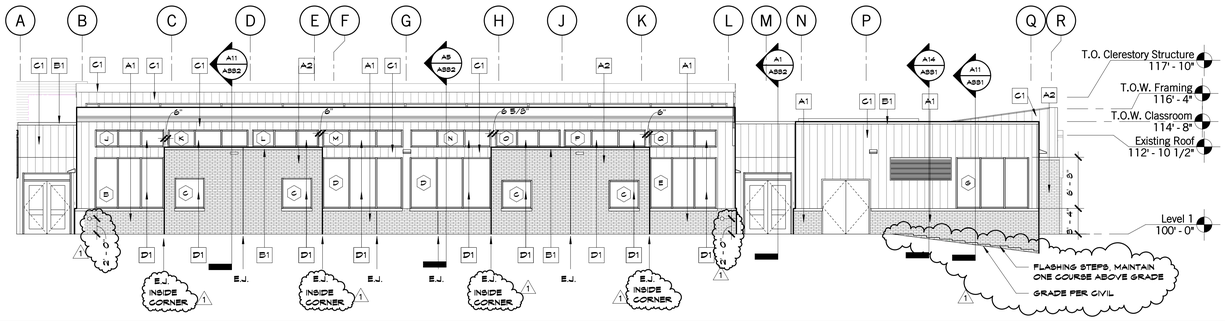
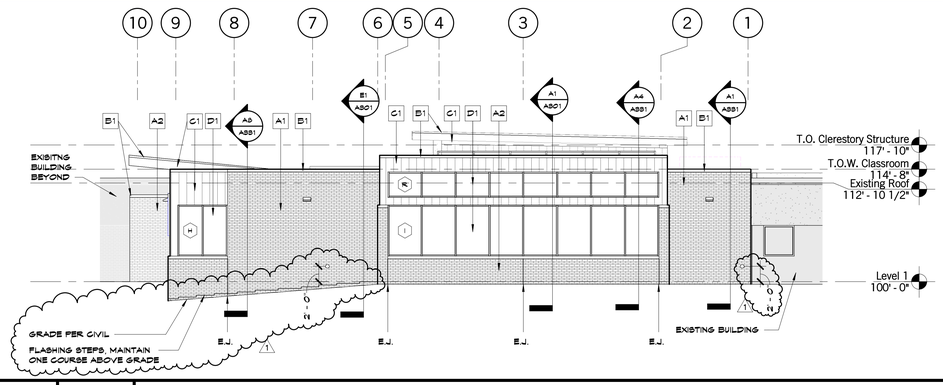
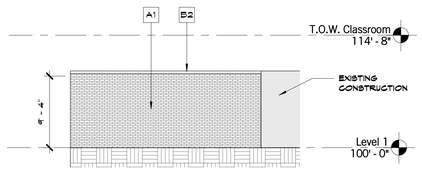


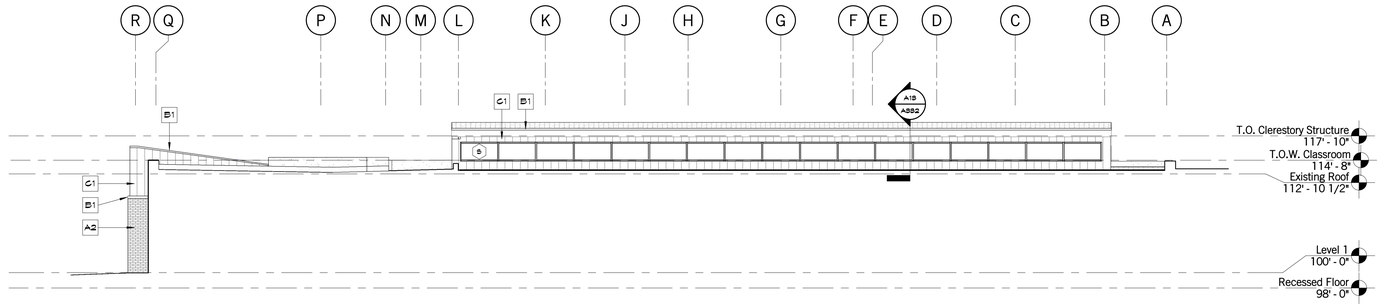
N1 Scale 1/8" = 1'-0" — East Elevation



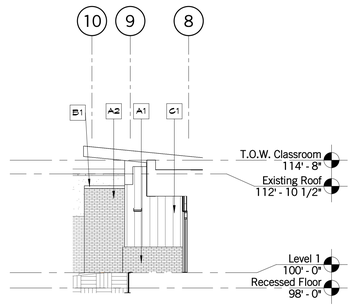
J1 Scale 1/8" = 1'-0" — North Elevation



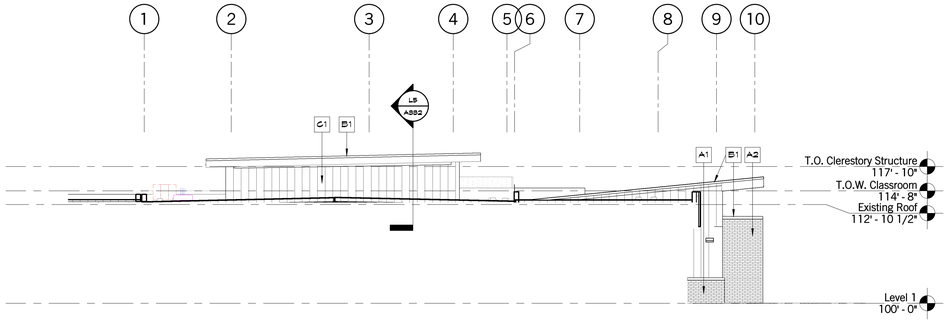
J9 Scale 1/8" = 1'-0" — Chiller West



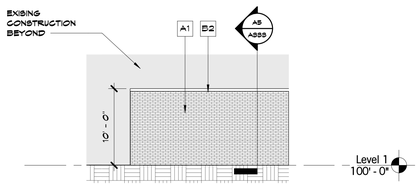
E1 Scale 1/8" = 1'-0" — West Elevation



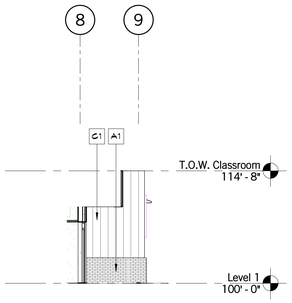
E13 Scale 1/8" = 1'-0" — Collab Elevation North



A1 Scale 1/8" = 1'-0" — South Elevation



A9 Scale 1/8" = 1'-0" — Chiller South



A13 Scale 1/8" = 1'-0" — Vestibule Elevation North

SHEET KEYNOTE LEGEND

SHEET NOTES

1. REFER TO SHEET G000 FOR SHEET INDEX
2. DO NOT SCALE THIS DRAWING
3. WALL MOUNTED LIGHT FIXTURES, LAMBS TONGUES AND OTHER MEP ITEMS ARE SHOWN FOR PLACEMENT ONLY

EXTERIOR MATERIAL LEGEND

A1	04 20 00.A12 - FACE BRICK (MODULAR) MANUFACTURER: CLOUD CERAMICS COLOR: BURGUNDY SIZE: MODULAR TEXTURE: VELOUR
A2	04 20 00.A12 - FACE BRICK (MODULAR) MANUFACTURER: YANKEE HILL COLOR: G-1 SIZE: MODULAR TEXTURE: VELOUR
B1	07 62 00.A13 - PREFINISHED METAL COPING COLOR: SILVER GRAY
B2	07 62 00.A13 - PREFINISHED METAL COPING COLOR: MATCH EXISTING ADJACENT
C1	07 42 13.A01 - FORMED METAL WALL PANEL MANUFACTURER: MORIN PROFILE: F-12 VERTICAL COLOR: 4962 XL SILVER GRAY
D1	08 44 13.A01 - ANODIZED ALUMINUM STOREFRONT SYSTEM MANUFACTURER: KAWNEER TRIFAB VERSAGLAZE 451T COLOR: CLEAR ANODIZED

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A201

EXTERIOR ELEVATIONS - OVERALL

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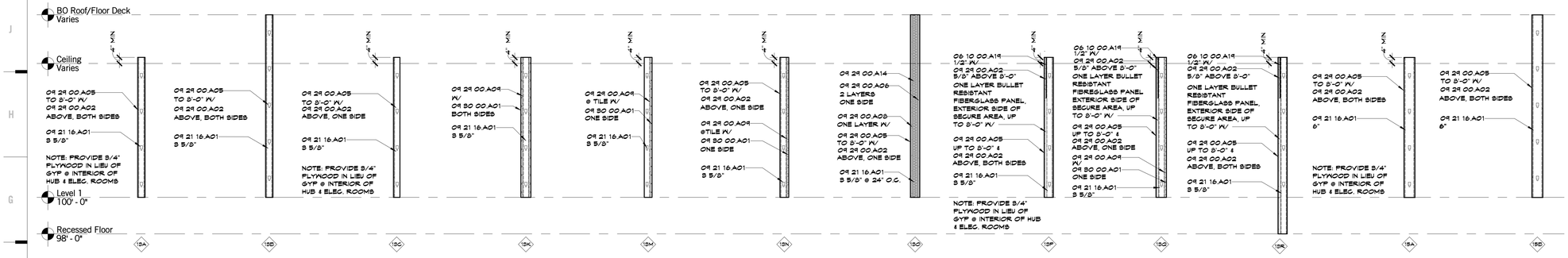
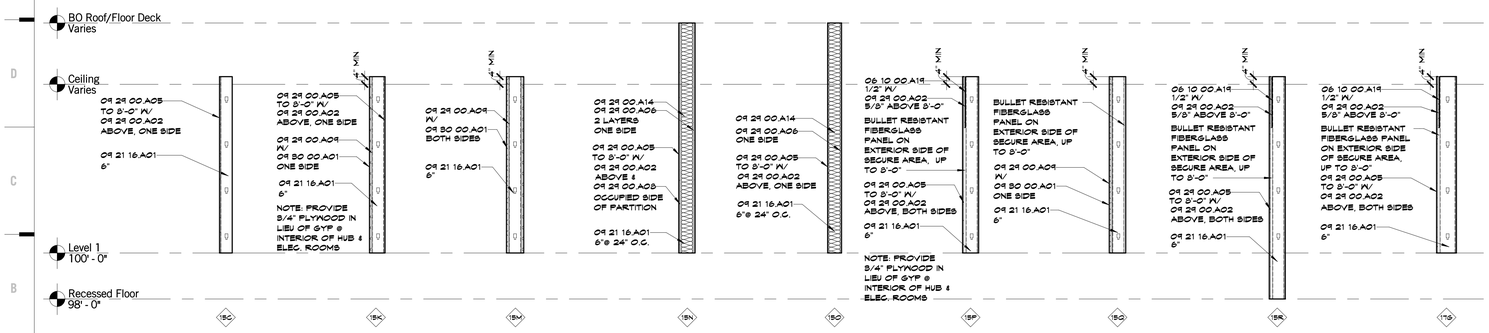
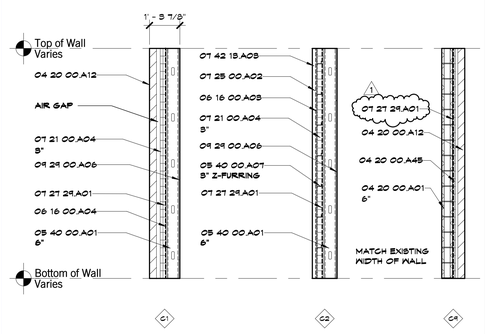


F1 Scale 3/8" = 1'-0" — Interior Wall Types



A1 Scale 3/8" = 1'-0" — Int. Wall Types



A13 Scale 3/8" = 1'-0" — Exterior Wall Types

SHEET KEYNOTE LEGEND

04 20 00.A01	CONCRETE MASONRY UNITS
04 20 00.A12	FACE BRICK
04 20 00.A45	CAVITY WALL INSULATION
05 40 00.A01	COLD-FORMED METAL FRAMING
05 40 00.A07	MISCELLANEOUS FRAMING/FURRING
06 10 00.A19	PLYWOOD BLOCKING AND BACKING PANELS
06 16 00.A03	PLYWOOD WALL SHEATHING
06 16 00.A04	GLASS-MAT GYPSUM WALL SHEATHING
07 21 00.A04	POLYISOCYANURATE INSULATION
07 25 00.A02	SELF-ADHERING WEATHER BARRIERS
07 27 29.A01	VAPOR RETARDING AIR BARRIER COATING
07 42 13.A05	CONCEALED FASTENER METAL WALL PANELS
09 21 16.A01	NON-STRUCTURAL FRAMING
09 29 00.A02	GYPSUM BOARD - TYPE X
09 29 00.A03	ABUSE/IMPACT-RESISTANT GYPSUM BOARD
09 29 00.A06	MOLD AND MOISTURE RESISTANT GYPSUM BOARD
09 29 00.A05	ACOUSTICALLY-ENHANCED GYPSUM BOARD
09 29 00.A09	GLASS-MAT WATER RESISTANT BACKING BOARD
09 29 00.A14	SOUND ATTENUATION BLANKETS
09 30 00.A01	TILE

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Construction Documents

Valley Park Elementary School Addition
Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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JOB NO: 18027
DRAWN BY: PT/JL
CHECKED BY: SB
DATE: 11.13.2018

A311

WALL TYPES

11/20/2018 2:54:11 PM

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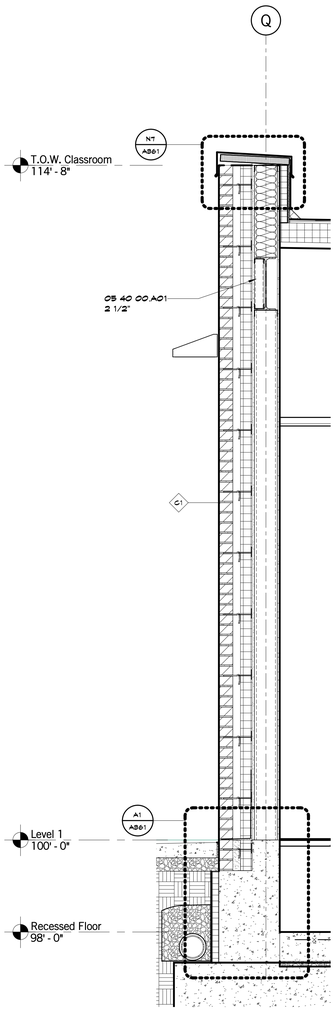
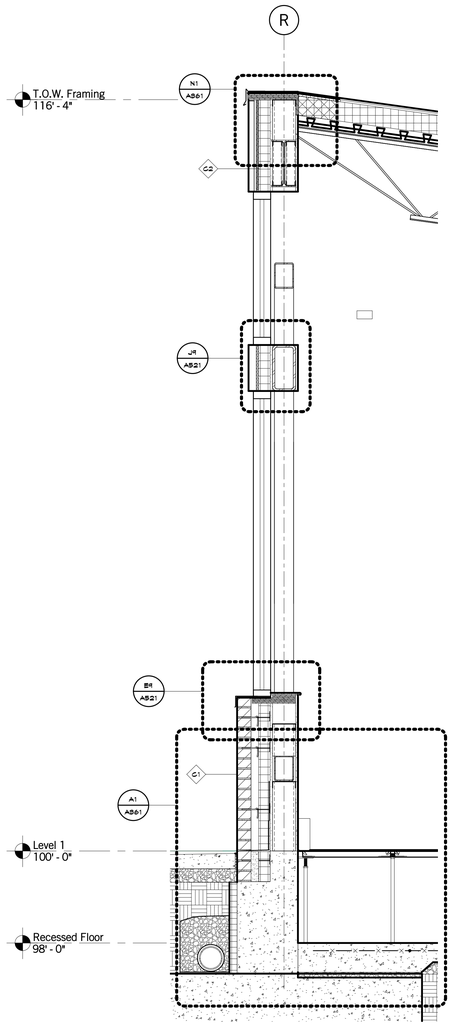
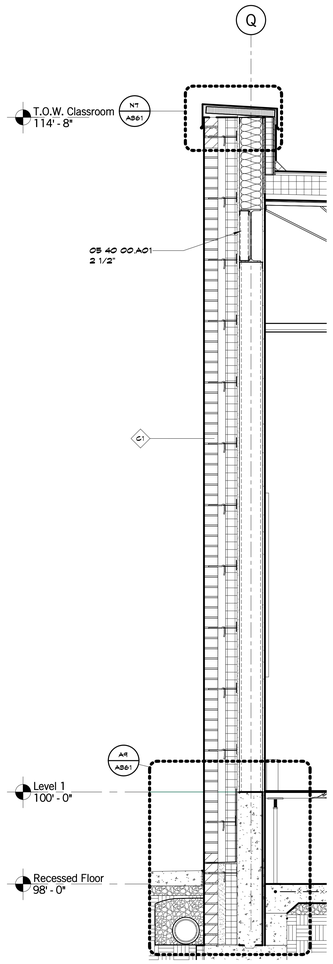


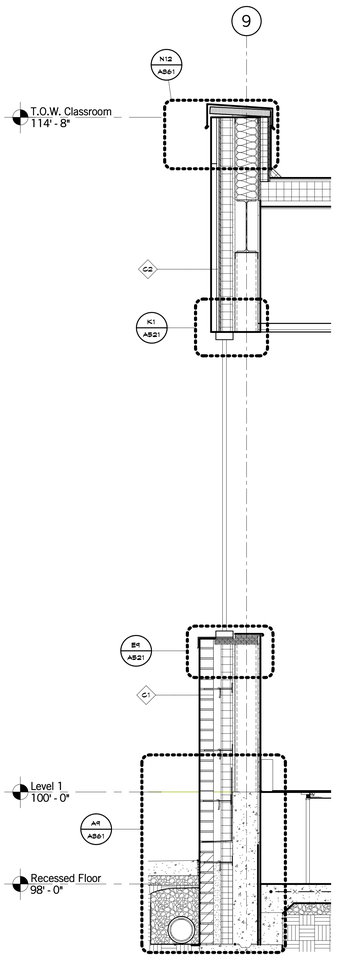
A1	Scale	Wall Section @ Classroom North
	3/4" = 1'-0"	



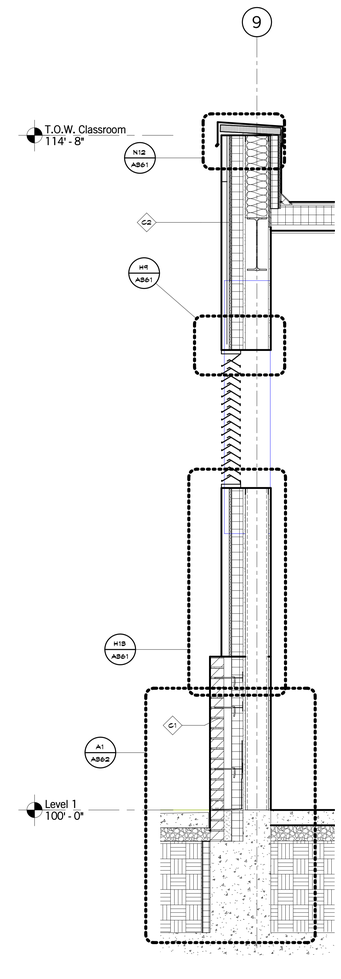
A4	Scale	Wall Section @ Classroom North Storefront
	3/4" = 1'-0"	



A8	Scale	Wall Section @ Collab North
	3/4" = 1'-0"	



A11	Scale	Wall Section @ Collab East
	3/4" = 1'-0"	



A14	Scale	Wall Section @ Mechanical Room
	3/4" = 1'-0"	

SHEET KEYNOTE LEGEND

05 40 00 A01 COLD-FORMED METAL FRAMING

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Construction Documents

Valley Park Elementary School Addition

Blue Valley School District

12301 Lamar Ave.
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Project Number: VPE-1901

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KANSAS
ARCHITECT
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DATE: 11.13.2018

A331

WALL SECTIONS

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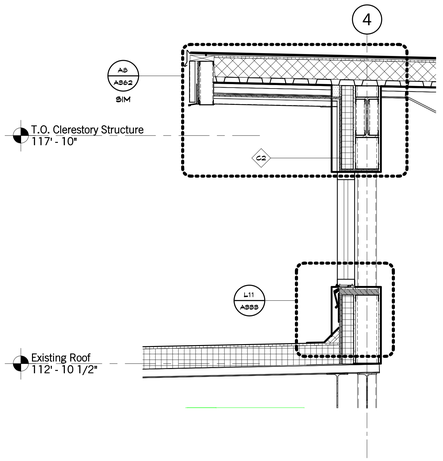
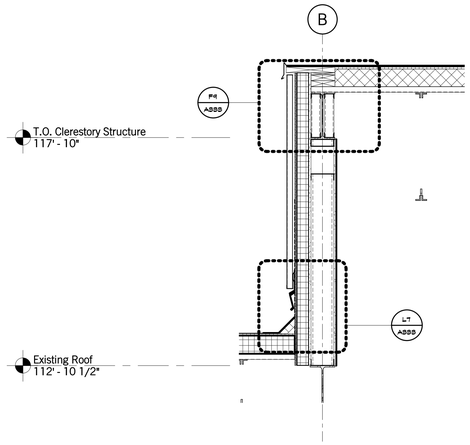
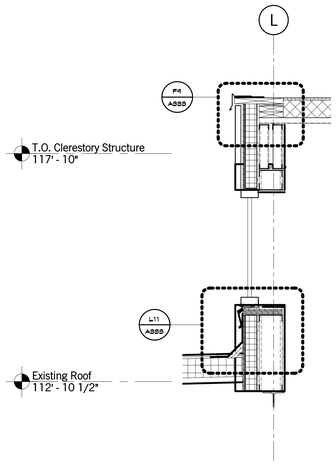


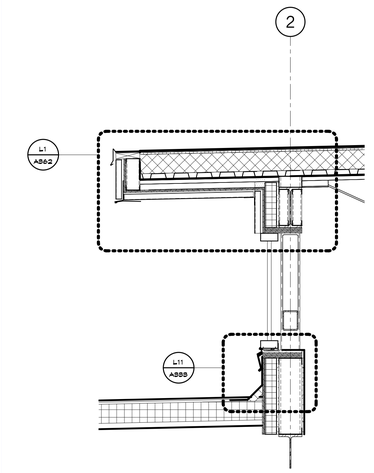
L1	Scale 3/4" = 1'-0"	Wall Section @ Clerestory East



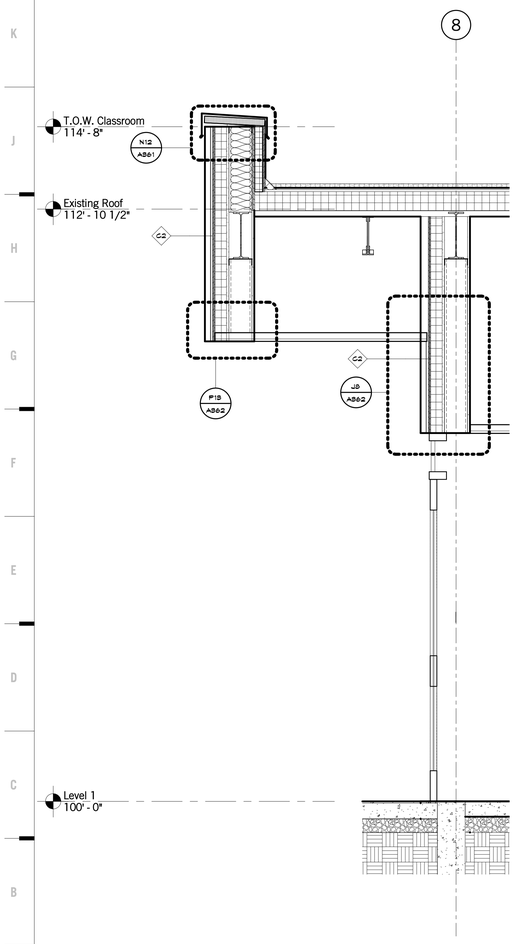
L5	Scale 3/4" = 1'-0"	Wall Section @ Clerestory South



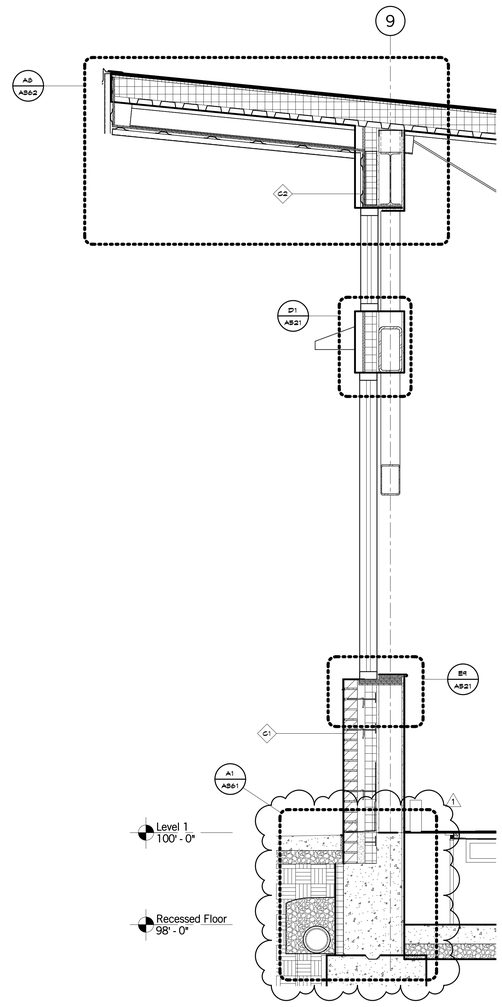
L9	Scale 3/4" = 1'-0"	Wall Section @ Clerestory North



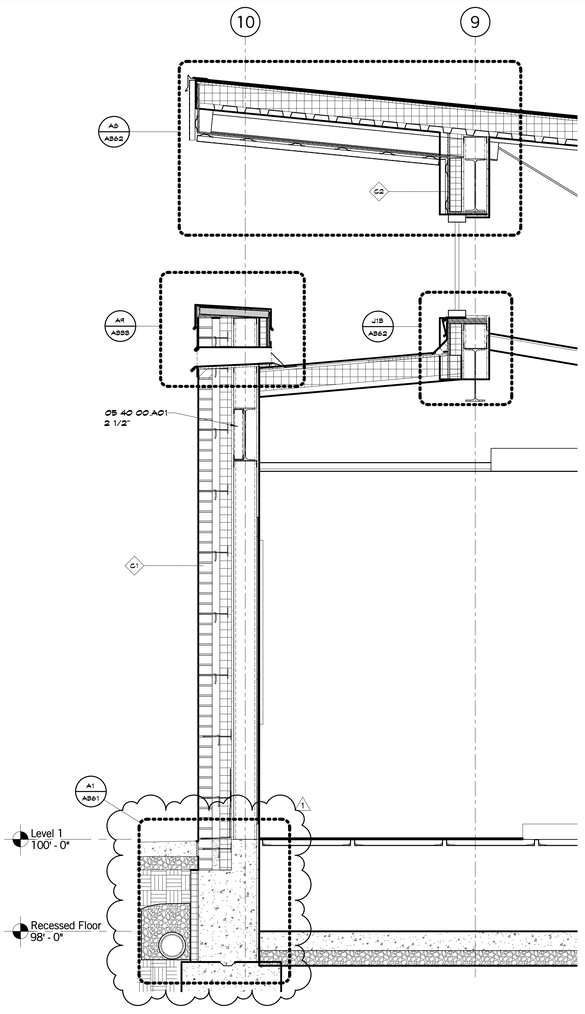
A13	Scale 3/4" = 1'-0"	Wall Section @ Clerestory West



A1	Scale 3/4" = 1'-0"	Wall Section @ Vestibule North



A5	Scale 3/4" = 1'-0"	Wall Section @ Classroom East



A11	Scale 3/4" = 1'-0"	Wall Section @ Collab Overhang

SHEET KEYNOTE LEGEND

05 40 00.A01 COLD-FORMED METAL FRAMING

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A332

WALL SECTIONS

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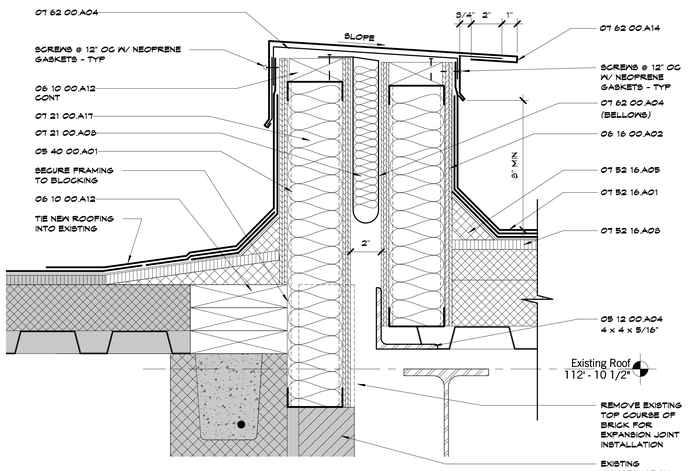
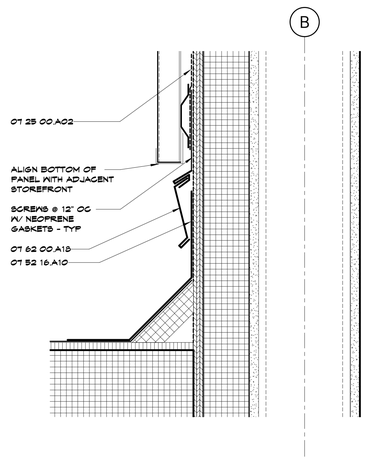
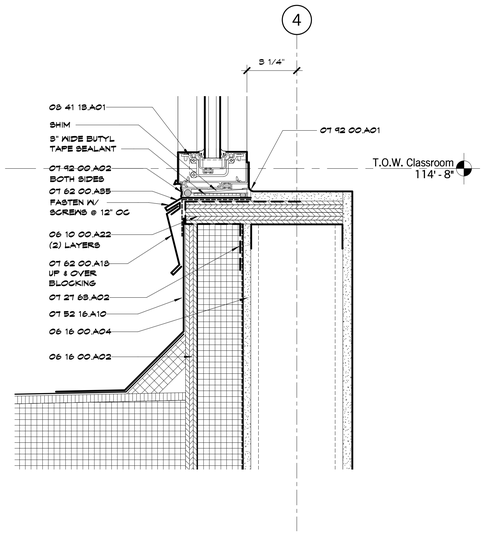
11/20/2018 2:54:17 PM



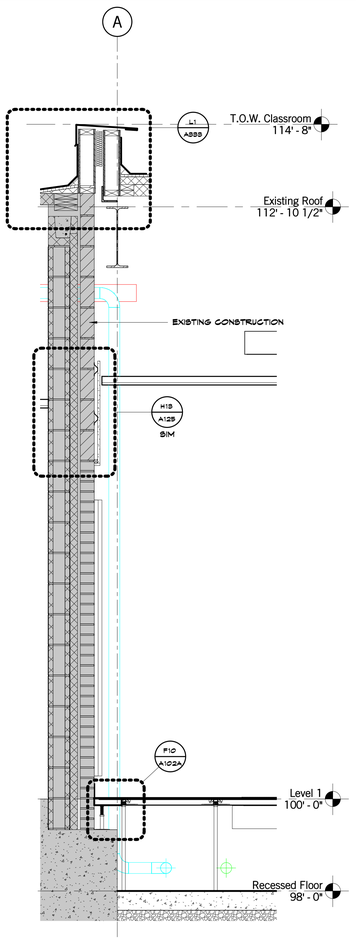
L1 | Scale 3" = 1'-0" | Expansion Joint Detail - Existing Roof to New Roof



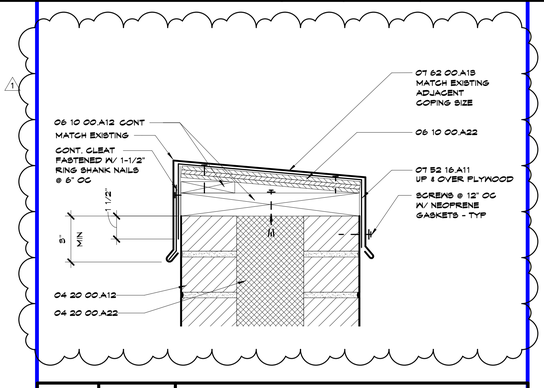
L7 | Scale 3" = 1'-0" | Roof Detail @ Clerestory Metal Panel



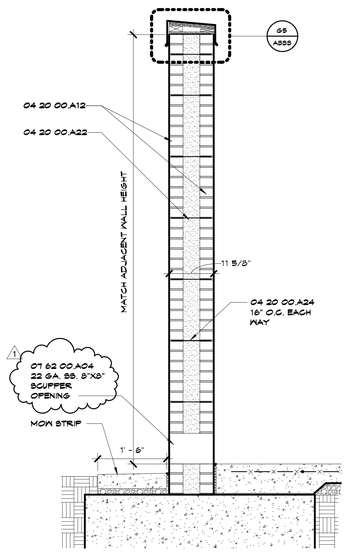
L11 | Scale 3" = 1'-0" | Storefront Sill Detail @ Clerestory



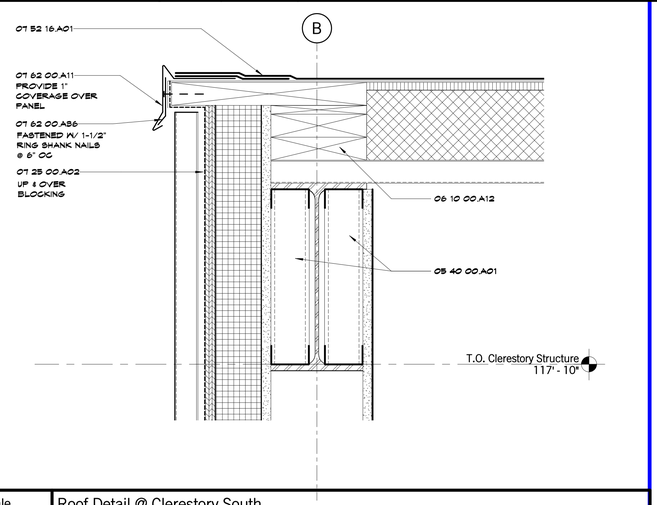
A1 | Scale 3/4" = 1'-0" | Wall Section @ Existing to New



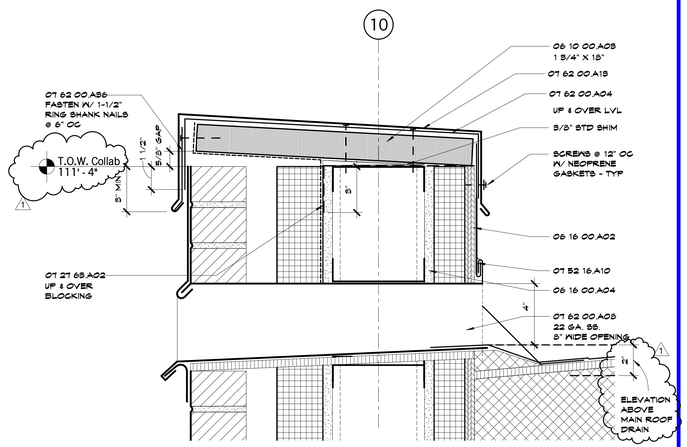
G5 | Scale 3" = 1'-0" | Top of Wall Detail @ Chiller Yard



A5 | Scale 3/4" = 1'-0" | Wall Section @ Chiller Yard



F9 | Scale 3" = 1'-0" | Roof Detail @ Clerestory South



A9 | Scale 3" = 1'-0" | Top Of Wall Detail @ Scupper

SHEET KEYNOTE LEGEND

04 20 00.A12	FACE BRICK
04 20 00.A22	GROUT
04 20 00.A24	MASONRY JOINT REINFORCEMENT
05 12 00.A04	ANGLE
05 40 00.A01	COLD-FORMED METAL FRAMING
06 10 00.A03	LAMINATED-VENEER LUMBER
06 10 00.A12	PRESERVATIVE TREATED WOOD BLOCKING/NAILERS
06 10 00.A16	FIRE-RETARDANT TREATED WOOD BLOCKING & NAILERS
06 10 00.A22	PRESERVATIVE TREATED PLYWOOD BLOCKING
06 16 00.A02	FIRE-RETARDANT TREATED PLYWOOD
06 16 00.A04	GLASS-MAT GYPSUM WALL SHEATHING
07 21 00.A03	UNFACED GLASS FIBER BLANKET INSULATION
07 21 00.A17	MINERAL WOOL
07 25 00.A02	SELF-ADHERING WEATHER BARRIERS
07 27 69.A02	TRANSITION MEMBRANE
07 52 16.A01	MODIFIED BITUMINOUS ROOFING SYSTEM
07 52 16.A05	INSULATION CANT STRIPS
07 52 16.A03	COVERBOARD
07 52 16.A10	VERTICAL WALL FLASHING (MODIFIED BITUMINOUS)
07 52 16.A11	VERTICAL WALL FLASHING (EPDM)
07 62 00.A04	FLEXIBLE MEMBRANE CLOSURE
07 62 00.A05	SCUPPERS
07 62 00.A11	GRAVEL STOP
07 62 00.A13	COPING
07 62 00.A14	ROOF TO ROOF EXPANSION JOINT COVER
07 62 00.A18	COUNTER FLASHING
07 62 00.A35	PRE-FINISHED MISC METAL FLASHING
07 62 00.A36	CLEAT
07 92 00.A01	SEALANT
07 92 00.A02	SEALANT W/BACKER ROD
08 41 13.A01	STOREFRONT FRAMING (THERMAL BROKEN)
09 29 00.A02	GYPSUM BOARD - TYPE X

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A333

WALL SECTIONS

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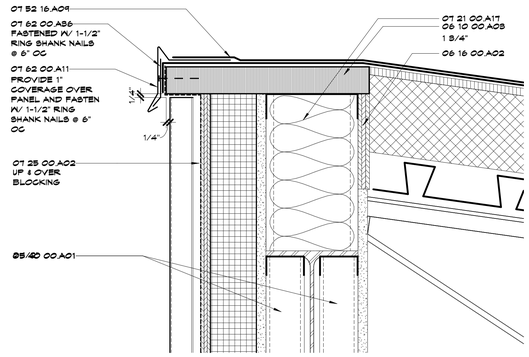
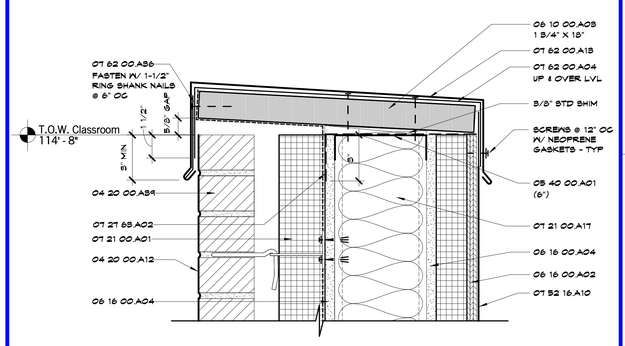
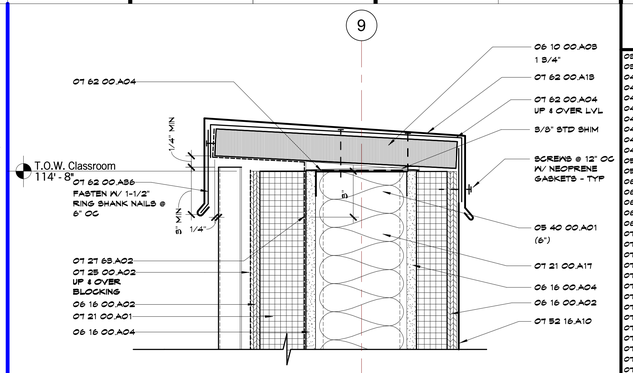


N1 Scale 3" = 1'-0" — Top of Wall @ Metal Panel & Metal Stud w/ Gravelstop



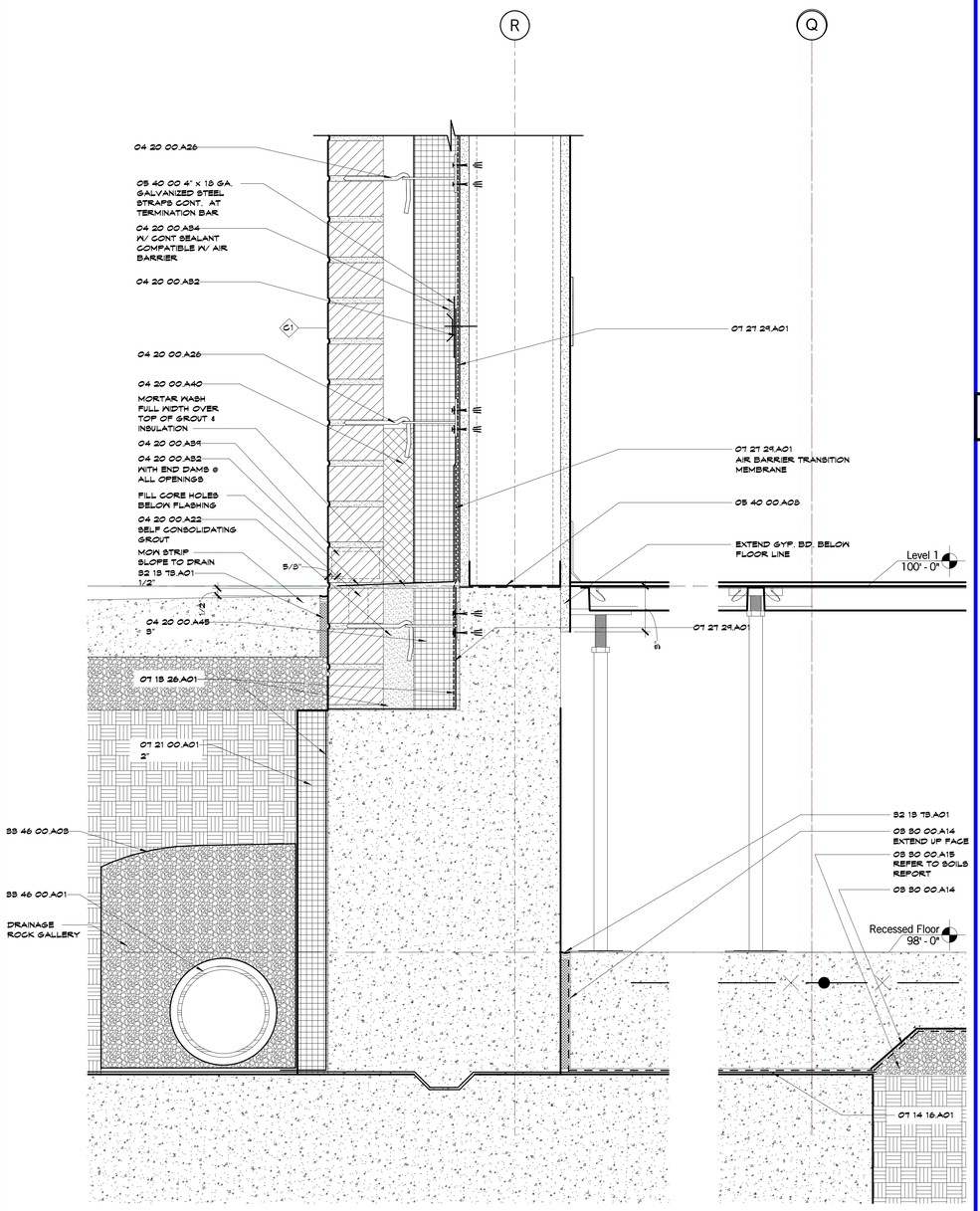
N7 Scale 3" = 1'-0" — Top Of Wall Detail @ Brick & Metal Stud



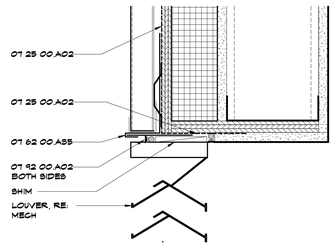
N12 Scale 3" = 1'-0" — Top of Wall @ Metal Panel & Metal Stud

SHEET KEYNOTE LEGEND

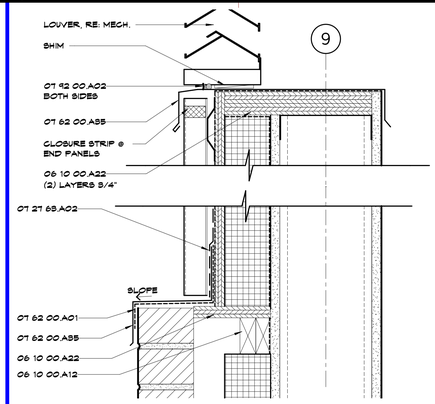
03 30 00.A14	VAPOR RETARDERS
03 30 00.A15	GRANULAR DRAINAGE FILL
04 20 00.A12	FACE BRICK
04 20 00.A22	GROUT
04 20 00.A36	ADJUSTABLE MASONRY VENEER ANCHORS
04 20 00.A52	EMBEDDED FLEXIBLE FLASHING
04 20 00.A54	FLASHING TERMINATION BARS
04 20 00.A59	WEEP HOLE/VENT
04 20 00.A40	CAVITY DRAINAGE MATERIAL
04 20 00.A48	CAVITY WALL INSULATION
05 40 00.A01	COLD-FORMED METAL FRAMING
05 40 00.A05	ISOLATION STRIP MEMBRANE
06 10 00.A03	LAMINATED-VENEER LUMBER
06 10 00.A12	PRESERVATIVE TREATED WOOD BLOCKING/NAILERS
06 10 00.A22	PRESERVATIVE TREATED PLYWOOD BLOCKING
06 16 00.A02	FIRE-RETARDANT TREATED PLYWOOD
06 16 00.A04	GLASS-MAT GYPSUM WALL SHEATHING
07 18 28.A01	SELF ADHERING SHEET WATERPROOFING
07 14 16.A01	COLD FLUID-APPLIED WATERPROOFING
07 21 00.A01	EXTRUDED POLYSTYRENE BOARD INSULATION
07 21 00.A17	MINERAL WOOL
07 25 00.A02	SELF-ADHERING WEATHER BARRIERS
07 27 29.A01	VAPOR RETARDING AIR BARRIER COATING
07 27 68.A02	TRANSITION MEMBRANE
07 52 16.A04	BASE FLASHING
07 52 16.A10	VERTICAL WALL FLASHING (MODIFIED BITUMINOUS)
07 62 00.A01	UNDERLAYMENT
07 62 00.A04	FLEXIBLE MEMBRANE CLOSURE
07 62 00.A11	GRAVEL STOP
07 62 00.A18	COPING
07 62 00.A35	PRE-FINISHED MISC METAL FLASHING
07 62 00.A36	CLEAT
07 92 00.A02	SEALANT W/BACKER ROD
32 18 78.A01	EXPANSION/ISOLATION JOINT W/SEALANT
33 46 00.A01	SUBDRAINAGE SYSTEM PIPING
33 46 00.A03	GEOTEXTILE FILTER FABRICS



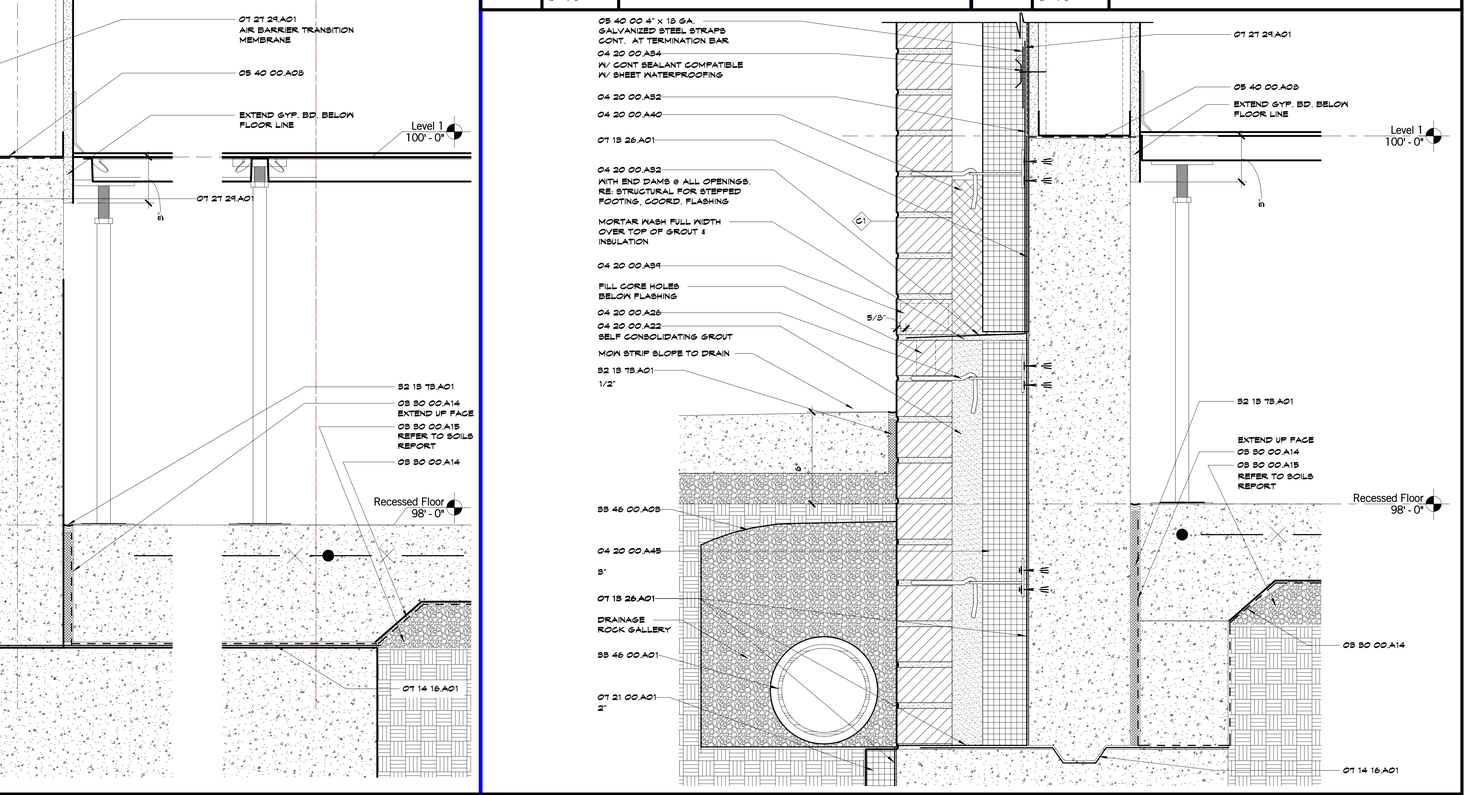
A1 Scale 3" = 1'-0" — Base of Wall Detail - Brick & Metal Stud w/ Access Floor



H9 Scale 3" = 1'-0" — Head Detail @ Mech. Louver



H13 Scale 3" = 1'-0" — Sill Detail @ Mech. Louver



A9 Scale 3" = 1'-0" — Base of Wall Detail - Brick & Metal Stud w/ Stem Wall

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11/13/18

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DATE: 11.13.2018

A361

EXTERIOR DETAILS

11/20/2018 2:54:24 PM

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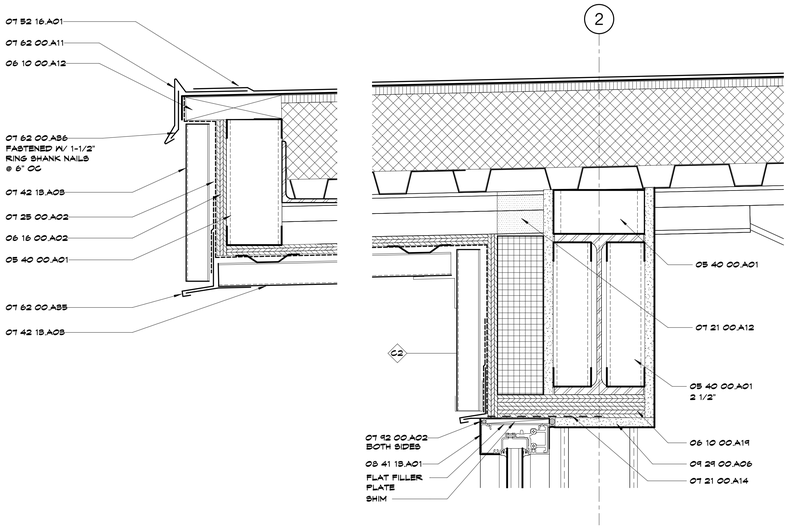
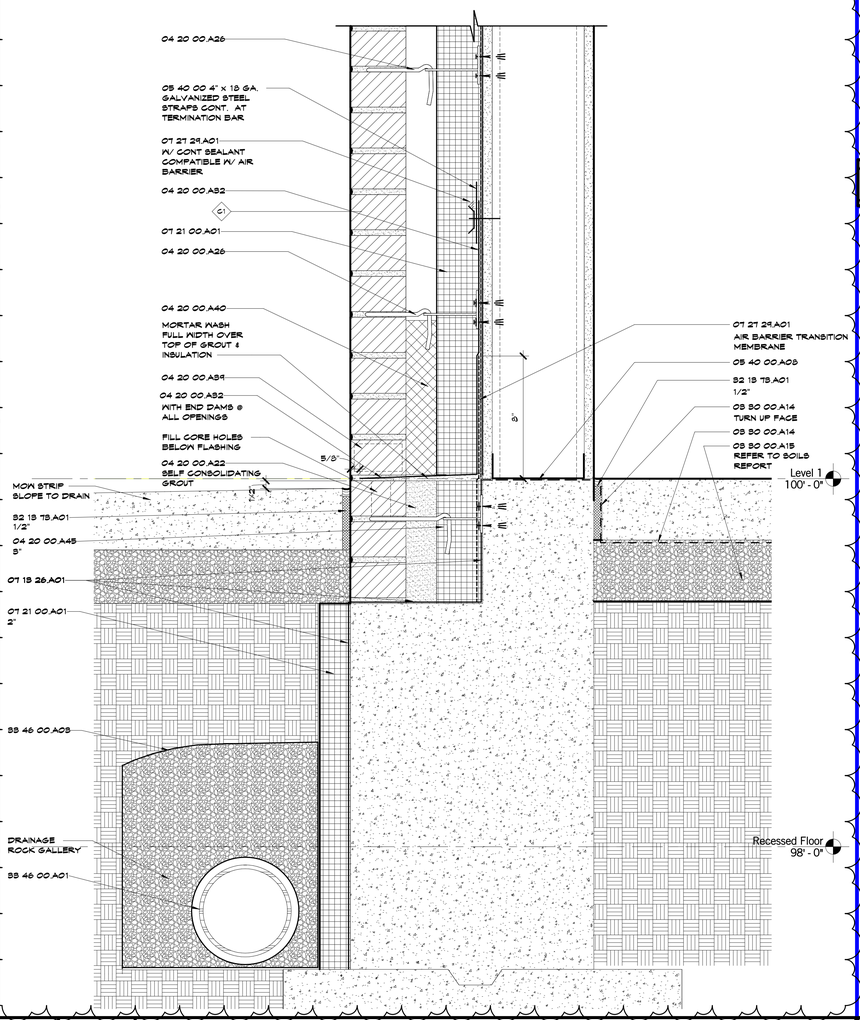
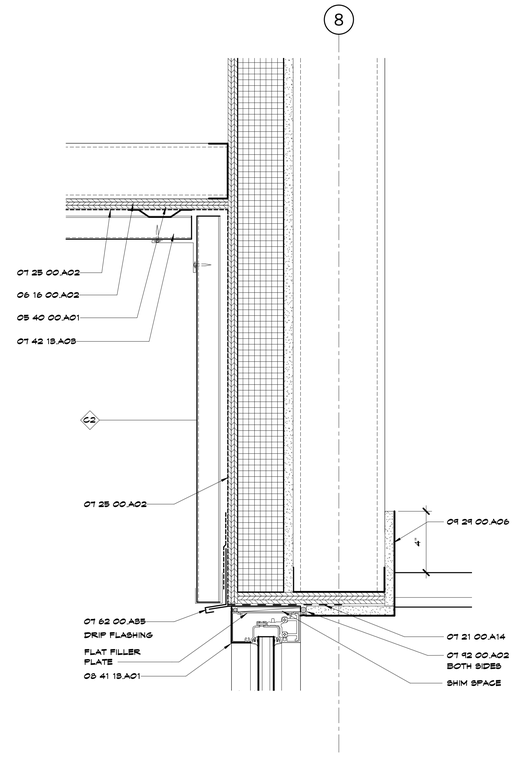


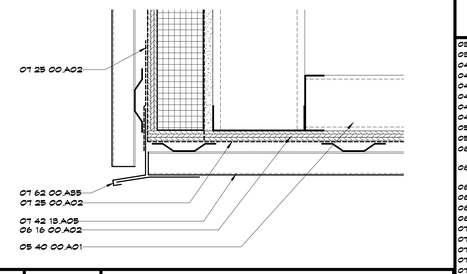
L1 Scale 3" = 1'-0" — Roof Detail @ Clerestory Overhang



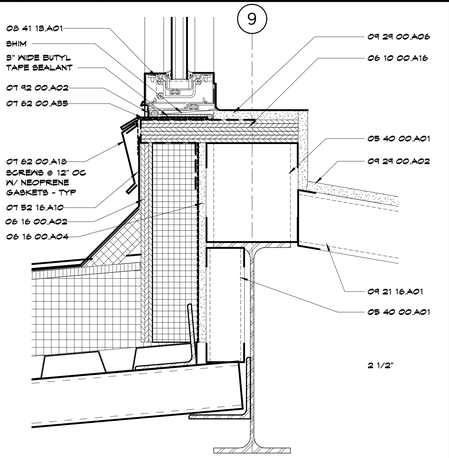
A1 Scale 3" = 1'-0" — Base of Wall Detail - Brick & Metal Stud



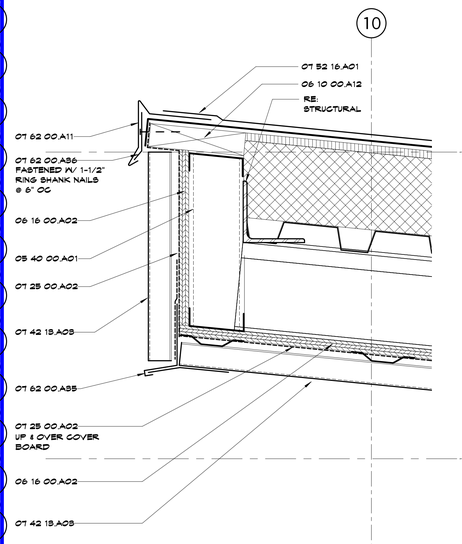
J8 Scale 3" = 1'-0" — Storefront Head Detail @ Metal Panel

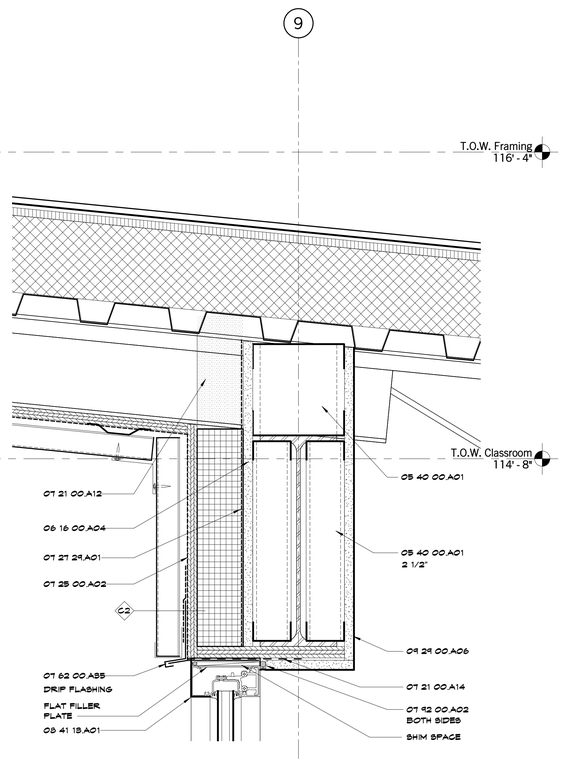


P13 Scale 3" = 1'-0" — Soffit Detail @ Entry



J13 Scale 3" = 1'-0" — Storefront Sill Detail @ Clerestory





A8 Scale 3" = 1'-0" — Roof Detail @ Overhang

SHEET KEYNOTE LEGEND

03 30 00.A14	VAPOR RETARDERS
03 30 00.A15	GRANULAR DRAINAGE FILL
04 20 00.A22	GROUT
04 20 00.A26	ADJUSTABLE MASONRY VENEER ANCHORS
04 20 00.A32	EMBEDDED FLEXIBLE FLASHING
04 20 00.A84	WEEP HOLE/VENT
04 20 00.A40	CAVITY DRAINAGE MATERIAL
04 20 00.A45	CAVITY WALL INSULATION
05 40 00.A01	COLD-FORMED METAL FRAMING
05 40 00.A08	ISOLATION STRIP MEMBRANE
06 10 00.A12	PRESERVATIVE TREATED WOOD BLOCKING/NAILERS
06 10 00.A16	FIRE-RETARDANT TREATED WOOD BLOCKING & NAILERS
06 10 00.A19	PLYWOOD BLOCKING AND BACKING PANELS
06 10 00.A22	PRESERVATIVE TREATED PLYWOOD BLOCKING
06 16 00.A02	FIRE-RETARDANT TREATED PLYWOOD
06 16 00.A04	GLASS-MAT GYPSUM WALL SHEATHING
07 18 26.A01	SELF ADHERING SHEET WATERPROOFING
07 21 00.A01	EXTRUDED POLYSTYRENE BOARD INSULATION
07 21 00.A12	SPRAY-IN FOAM INSULATION
07 21 00.A14	VAPOR RETARDER
07 25 00.A02	SELF-ADHERING WEATHER BARRIERS
07 27 29.A01	VAPOR RETARDING AIR BARRIER COATING
07 42 13.A08	CONCEALED FASTENER METAL WALL PANELS
07 42 13.A08	METAL SOFFIT PANELS
07 52 16.A01	MODIFIED BITUMINOUS ROOFING SYSTEM
07 52 16.A10	VERTICAL WALL FLASHING (MODIFIED BITUMINOUS)
07 62 00.A11	GRAVEL STOP
07 62 00.A18	COUNTER FLASHING
07 62 00.A85	PRE-FINISHED MISC METAL FLASHING
07 62 00.A86	CLEAT
07 92 00.A02	SEALANT W/BACKER ROD
08 41 13.A01	STOREFRONT FRAMING (THERMAL BROKEN)
09 21 16.A01	NON-STRUCTURAL FRAMING
09 29 00.A02	GYPSUM BOARD - TYPE X
09 29 00.A06	MOLD AND MOISTURE RESISTANT GYPSUM BOARD
32 18 78.A01	EXPANSION/ISOLATION JOINT W/SEALANT
33 46 00.A01	SUBDRAINAGE SYSTEM PIPING
33 46 00.A08	GEOTEXTILE FILTER FABRICS

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913.742.5001 fax

Construction Documents

Valley Park Elementary School Addition
Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

MICHELLE CHAVEZ LICENSED KANSAS ARCHITECT 11/13/18

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EXTERIOR DETAILS

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SHEET KEYNOTE LEGEND

04 20 00.A01	CONCRETE MASONRY UNITS
04 20 00.A12	FACE BRICK
04 20 00.A35	COMPRESSIBLE FILLERS
05 40 00.A01	COLD-FORMED METAL FRAMING
06 10 00.A12	PRESERVATIVE TREATED WOOD BLOCKING/NAILERS
06 10 00.A18	WOOD BLOCKING/NAILERS
06 10 00.A22	PRESERVATIVE TREATED PLYWOOD BLOCKING
06 16 00.A02	FIRE-RETARDANT TREATED PLYWOOD
06 16 00.A04	GLASS-MAT GYPSUM WALL SHEATHING
07 21 00.A01	EXTRUDED POLYSTYRENE BOARD INSULATION
07 21 00.A17	MINERAL WOOL
07 25 00.A02	SELF-ADHERING WEATHER BARRIERS
07 27 29.A01	VAPOR RETARDING AIR BARRIER COATING
07 42 13.A03	CONCEALED FASTENER METAL WALL PANELS
07 62 00.A04	FLEXIBLE MEMBRANE CLOSURE
07 62 00.A35	PRE-FINISHED MISC METAL FLASHING
07 92 00.A02	SEALANT W/BACKER ROD
07 95 00.A03	WALL-TO-WALL JOINT SYSTEM
07 95 00.A05	WALL CORNER JOINT SYSTEM
07 95 00.A20	EXTERIOR PRE-FORMED CELLULAR FOAM
08 41 13.A01	STOREFRONT FRAMING (THERMAL BROKEN)
08 41 13.A11	JAMB CLOSURE MEMBRANE
09 21 16.A01	NON-STRUCTURAL FRAMING
09 29 00.A06	MOLD AND MOISTURE RESISTANT GYPSUM BOARD

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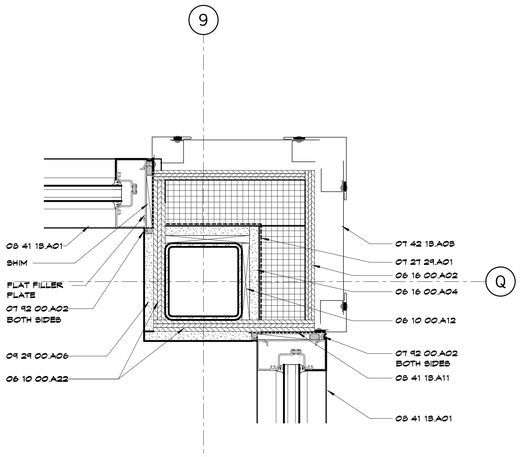
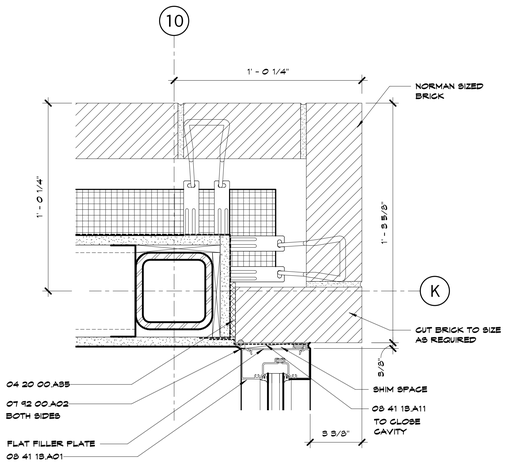
DATE: 11.13.2018

A363

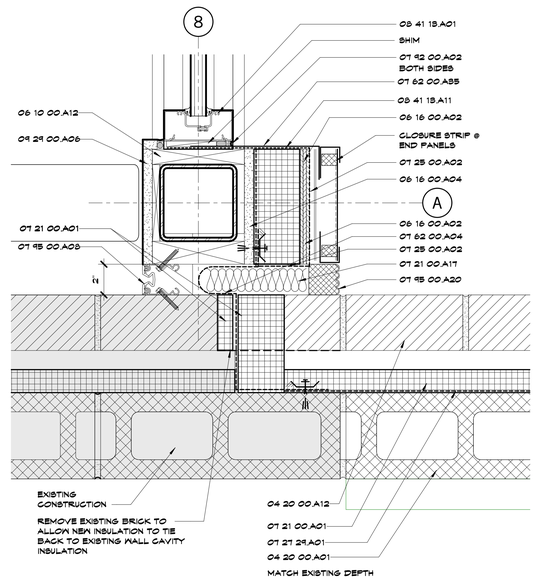
EXTERIOR DETAILS



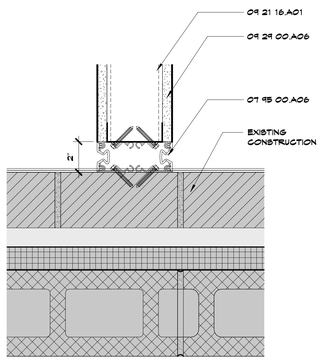
G1 Scale 3" = 1'-0" — Storefront Jamb Detail @ Metal Panel & Corner Column



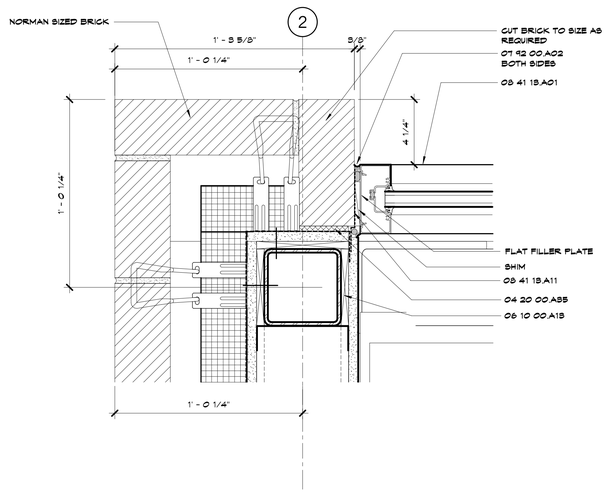
G6 Scale 3" = 1'-0" — Storefront Jamb Detail @ Brick & Corner Column



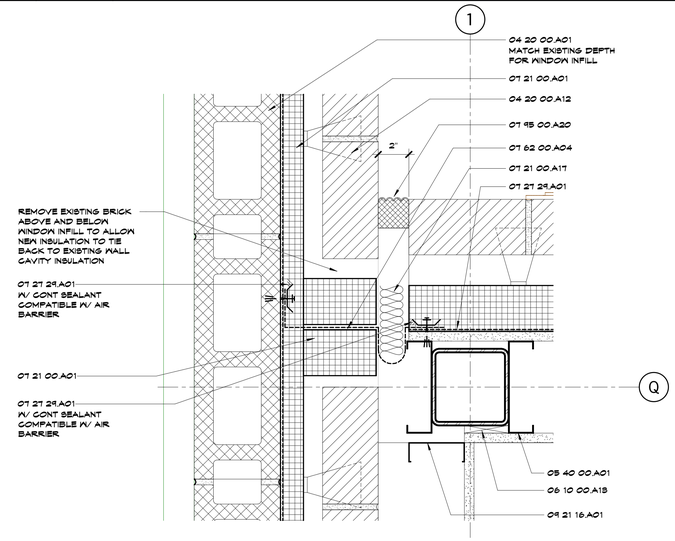
G10 Scale 3" = 1'-0" — Expainsion Joint Detail @ Entry



A1 Scale 3" = 1'-0" — Expansion Joint Detail @ Interior Entry



A5 Scale 3" = 1'-0" — Storefront Jamb Detail @ Brick & Corner Column



A10 Scale 3" = 1'-0" — Expansion Joint Detail @ New to Existing Wall

1 MULTIPLE REVISIONS

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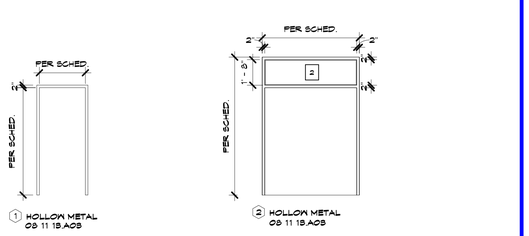
DOOR SCHEDULE

DOOR			Frame		All DETAILS on A521 UNO					
Number	Size	Type	Type	Material	Head	Strike	Hinge	Thresh	Fire Rating	Remarks
A101	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A102b	Renlita 9 x 10	D		ALUM	L4/A521	N12/A521	N9/A521			
A102b	Renlita 9 x 14	C	-	ALUM	L4/A521	N12/A521	N9/A521			
A103c	Nanawall 20'-0" - Marker board material	H	-	ALUM	D7/A522	A1/A522	A13/A522			
A104	PR 3'-0" x 7'-0" x 1 3/4"	B2	1	HM					--	
A105	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A106a	PR 3'-0" x 7'-0" x 1 3/4"	A2	A	ALUM	J1/A521	E4/A521	E4/A521	G14/A521	--	
A106b	PR 3'-0" x 7'-0" x 1 3/4"	A1	A	ALUM	J13/A521	E13/A521	E13/A521		--	
A107b	Nanawall 15'-0"	G	-	ALUM	E13/A522	A1/A522	A10/A522			
A107c	Nanawall 16'-8" - Marker board material	F	-	ALUM	D7/A522	A7/A522	A4/A522			
A108a	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A108b	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A108b	Nanawall 15'-0"	G	-	ALUM	E13/A522	A1/A522	A10/A522			
A109c	Nanawall 30'-0" - Marker board material	E	-	ALUM	D4/A522	A1/A522	A10/A522			
A110b	Nanawall 15'-0"	G	-	ALUM	E13/A522	A1/A522	A10/A522			
A110c	Nanawall 16'-8" - Marker board material	F	-	ALUM	D7/A522	A7/A522	A4/A522			
A111a	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A111b	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A112b	Nanawall 15'-0"	G	-	ALUM	E13/A522	A1/A522	A10/A522			
A113a	PR 3'-0" x 7'-0" x 1 3/4"	A2	A	ALUM	J1/A521	E4/A521	E4/A521	G14/A521	--	
A113b	PR 3'-0" x 7'-0" x 1 3/4"	A1	A	ALUM	J13/A521	E13/A521	E13/A521		--	
A114	PR 3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F2/A501	K2/A501	K2/A501		--	
A115a	PR 3'-0" x 7'-0" x 1 3/4"	B1	2	HM	F14/A501	K14/A501	K14/A501		--	
A115b	PR 3'-0" x 7'-0" x 1 3/4"	B1	2	HM	F14/A501	K14/A501	K14/A501		--	
A116	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A117	2'-6" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A118	2'-6" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A119	2'-6" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A120	2'-6" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A121	2'-6" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A122	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A123	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	
A124	3'-0" x 7'-0" x 1 3/4"	B1	1	HM	F14/A501	K14/A501	K14/A501		--	

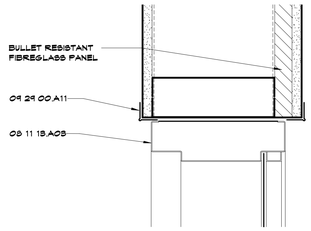
PRIVACY WALL DOOR SCHEDULE

DOORS LISTED BELOW TO BE PROVIDED BY DEMOUNTABLE PARTITION MANUFACTURER, RE: SPEC FOR ASSOCIATED HARDWARE.

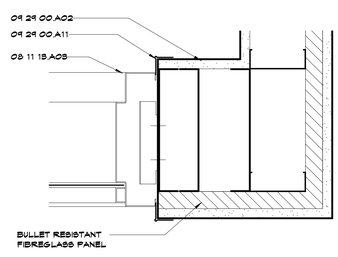
A102a
A103a
A107a
A109a
A110a
A112a



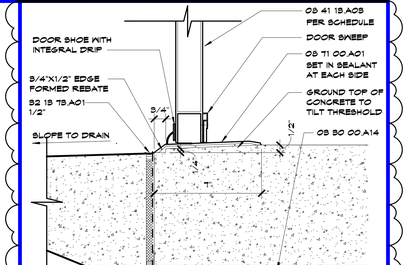
G1 Scale 1/4" = 1'-0" — HM Frame Types



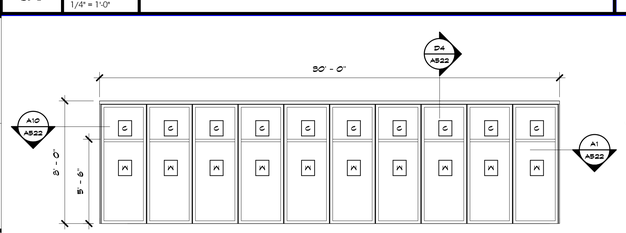
G6 Scale 3" = 1'-0" — Section 30

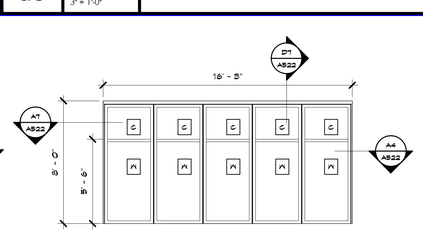


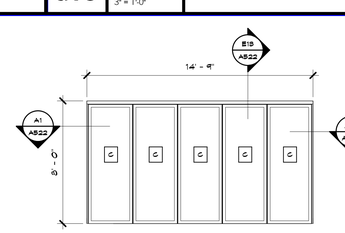
G10 Scale 3" = 1'-0" — Detail 20

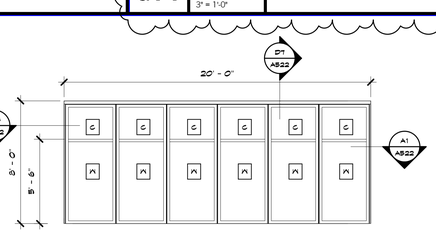


G14 Scale 3" = 1'-0" — Threshold @ Exterior Door

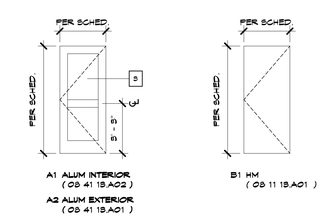


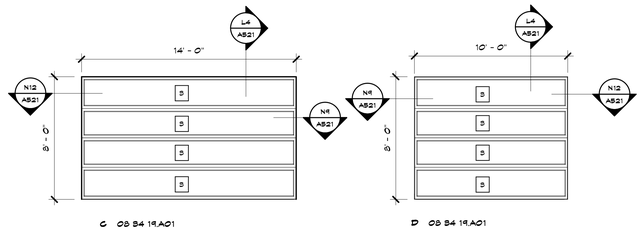




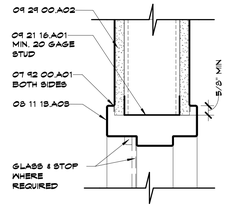


D1 Scale 1/4" = 1'-0" — Nana Walls

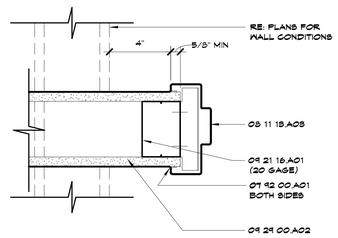




A1 Scale 1/4" = 1'-0" — Door Types



P14 Scale 3" = 1'-0" — HM Head @ Metal Stud



K14 Scale 3" = 1'-0" — HM Jamb @ Metal Stud

SHEET KEYNOTE LEGEND

08 80 00.A14	VAPOR RETARDERS
07 92 00.A01	SEALANT
08 11 1B.A01	HOLLOW METAL DOOR
08 11 1B.A03	HOLLOW METAL FRAME
08 84 14.A01	INTERIOR VERTICAL-FOLDING BI-FOLD DOOR
08 41 1B.A01	STOREFRONT FRAMING (THERMAL BROKEN)
08 41 1B.A02	STOREFRONT FRAMING (NON-THERMAL BROKEN)
08 41 1B.A03	ALUMINUM DOOR
08 71 00.A01	THRESHOLDS
09 21 16.A01	NON-STRUCTURAL FRAMING
09 29 00.A02	GYPSUM BOARD - TYPE X
09 29 00.A11	GYPSUM BOARD TRIM
10 22 39.A01	OPERABLE GLASS-PANEL PARTITION (MANUAL)
32 1B 7B.A01	EXPANSION/ISOLATION JOINT W/SEALANT

NANAWALL LEGEND

C CLEAR GLASS
A GLASS WITH WHITE INTERLAYER

GLASS LEGEND

1 LOW-E TINTED INSULATED GLASS - 08 80 00.A19
2 LEVEL 7 BULLET RESISTANT LAMINATED GLASS - 08 80 00.A03
3 CLEAR FULLY-TEMPERED MONOLITHIC FLOAT GLASS - 08 80 00.A02
4 LOW-E TINTED INSULATED ACID ETCHED GLASS - 08 80 00.A19
TEXTURE: VELOUR

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Construction Documents

Valley Park Elementary School Addition
Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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DATE: 11.13.2018

A501

DOOR SCHEDULE

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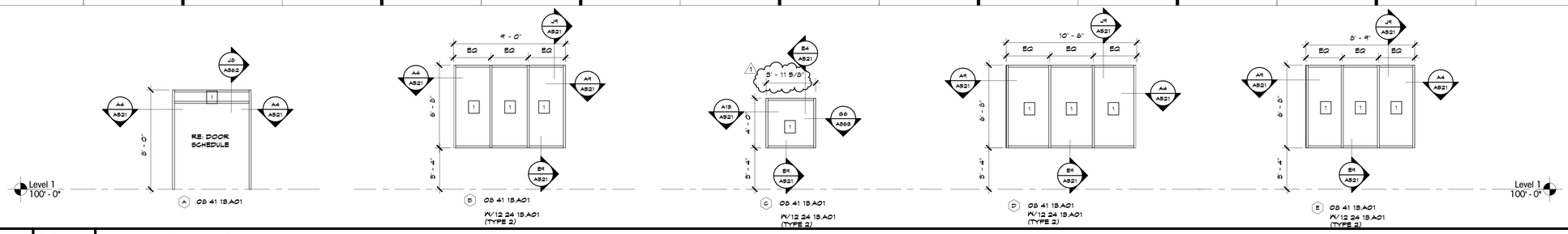
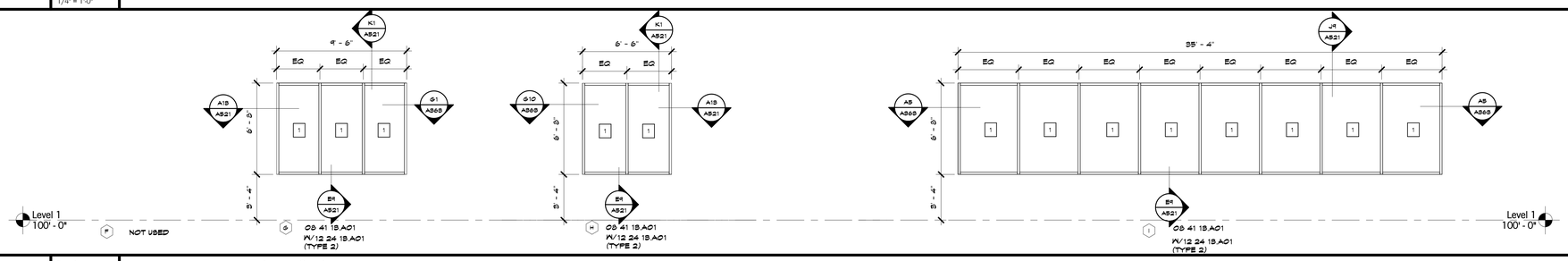
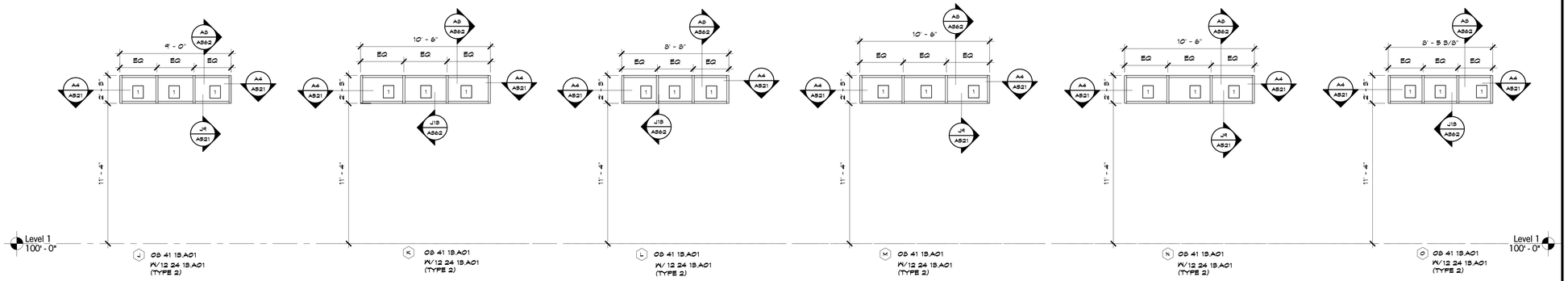


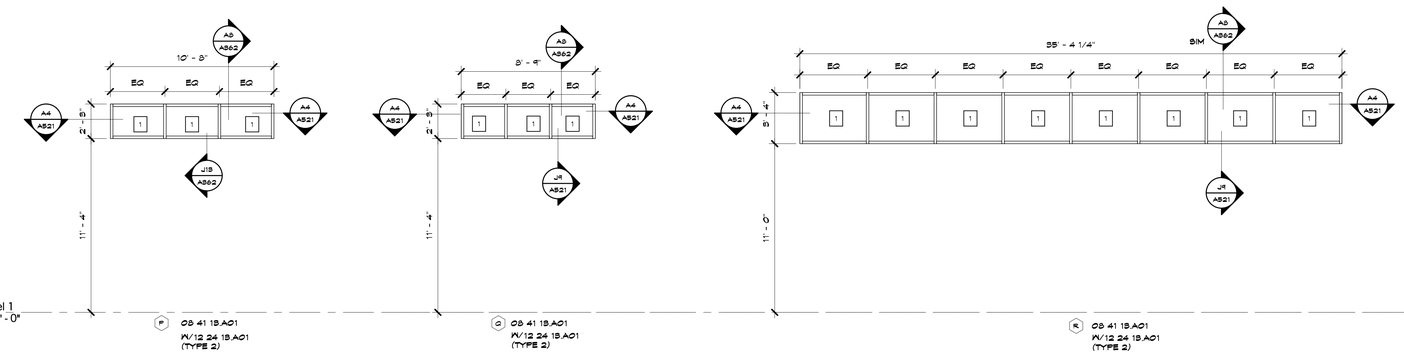
P1 Scale 1/4" = 1'-0" — Alum Frame Types - Exterior



L1 Scale 1/4" = 1'-0" — Alum Frame Types - Exterior Cont.



F1 Scale 1/4" = 1'-0" — Alum Frame Types - Low Clerestory



A1 Scale 1/4" = 1'-0" — Alum Frame Types - Low Clerestory Cont.

SHEET KEYNOTE LEGEND

08 41 1B.A01	STOREFRONT FRAMING (THERMAL BROKEN)
12 24 1B.A01	ROLLER SHADES (MANUAL)

SHADE LEGEND

TYPE 1 - LIGHT BLOCKING SHADES (12 24 1B.A01)

TYPE 2 - LIGHT FILTERING SHADES (12 24 1B.A01)

GLASS LEGEND

1. LOW-E TINTED INSULATED GLASS - 08 80 00.A19
2. LEVEL 7 BULLET RESISTANT LAMINATED GLASS - 08 80 00.A33
3. CLEAR FULLY-TEMPERED MONOLITHIC FLOAT GLASS - 08 80 00.A02
4. LOW-E TINTED INSULATED ACID ETCHED GLASS - 08 80 00.A19
   TEXTURE: VELOUR

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FRAME TYPES - ALUM

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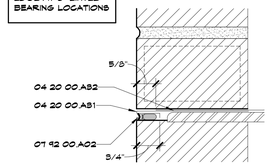
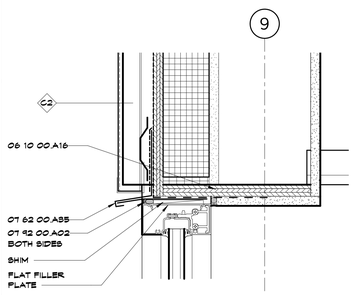
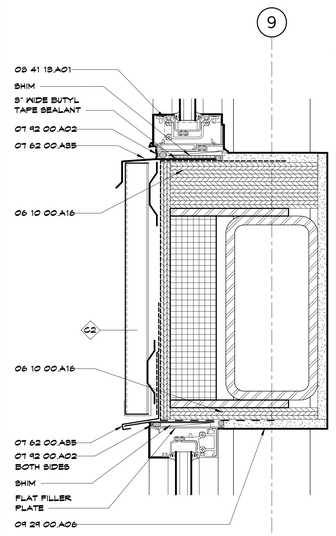


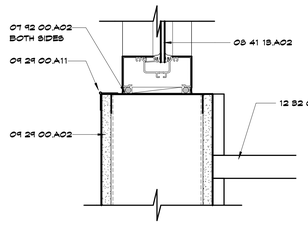
P1 Scale 6" = 1'-0" — Joint Detail @ Lintel Bearing



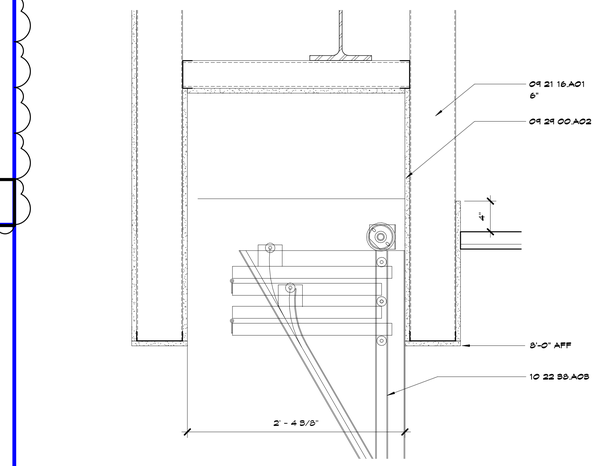
K1 Scale 3" = 1'-0" — Storefront Head Detail @ Metal Panel



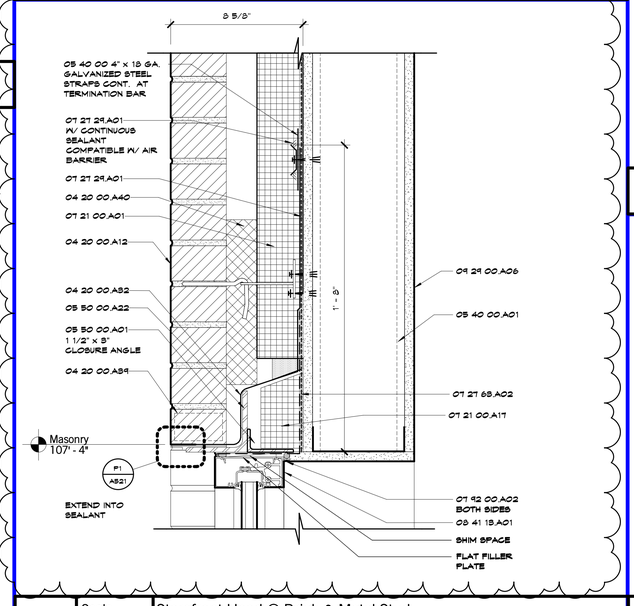
D1 Scale 3" = 1'-0" — Storefront Head & Sill Detail @ Beam



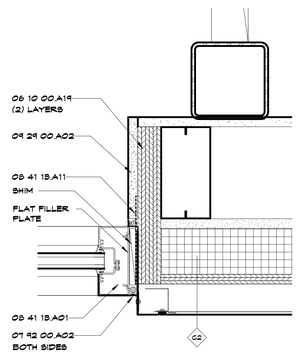
A1 Scale 3" = 1'-0" — Detail Section - Storefront Sill @ Stud Wall



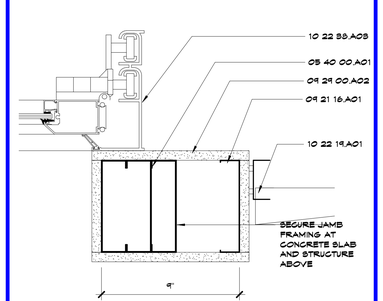
L4 Scale 1 1/2" = 1'-0" — Head Detail @ Vertical Folding Partition



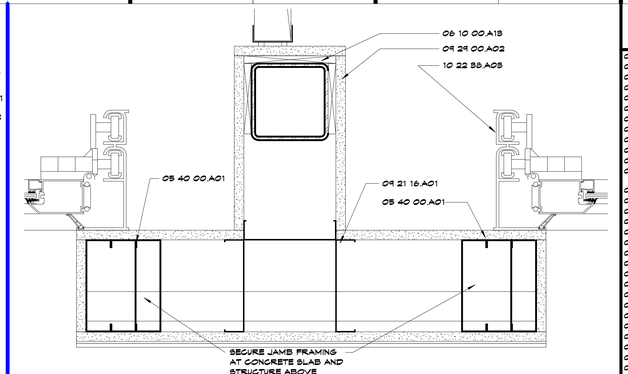
E4 Scale 3" = 1'-0" — Storefront Head @ Brick & Metal Stud



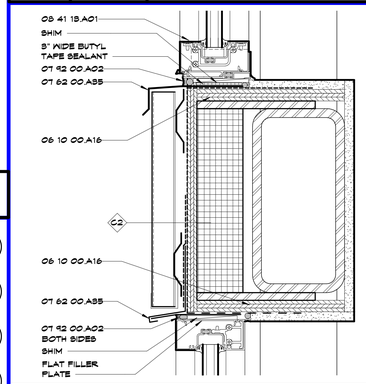
A4 Scale 3" = 1'-0" — Detail Section - Storefront Jamb @ Metal Panel



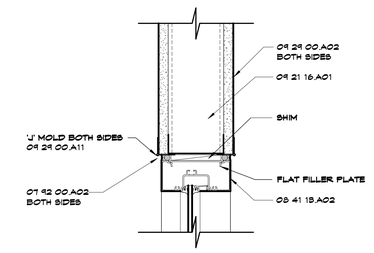
N9 Scale 3" = 1'-0" — Jamb Detail @ Vertical Folding Partition



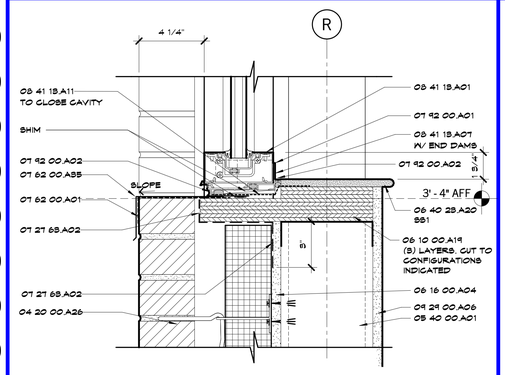
N12 Scale 3" = 1'-0" — Jamb Detail @ Vertical Folding Partition & Column



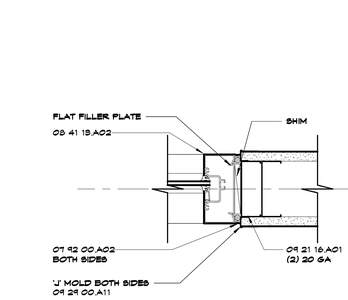
J9 Scale 3" = 1'-0" — Storefront Detail @ Head & Sill



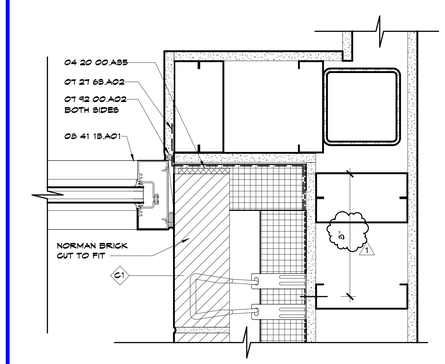
J13 Scale 3" = 1'-0" — Storefront Head @ Stud Wall (Interior)



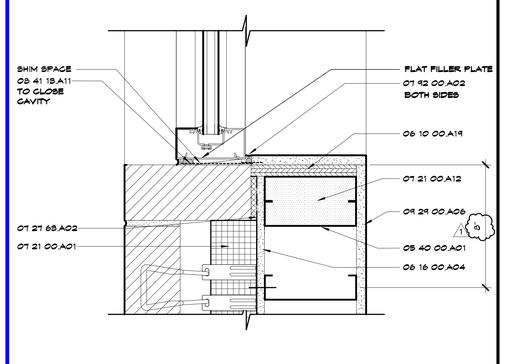
E9 Scale 3" = 1'-0" — Storefront Sill @ Brick and Metal Stud



E13 Scale 3" = 1'-0" — Storefront Jamb @ Stud Wall (Interior)



A9 Scale 3" = 1'-0" — Detail Section - Jamb @ Exterior Storefront



A13 Scale 3" = 1'-0" — Storefront Jamb @ Brick & Metal Stud

SHEET KEYNOTE LEGEND

04 20 00.A12	FACE BRICK
04 20 00.A26	ADJUSTABLE MASONRY VENEER ANCHORS
04 20 00.AB1	METAL DRIP EDGES
04 20 00.AB2	EMBEDDED FLEXIBLE FLASHING
04 20 00.AB5	COMPRESSIBLE FILLERS
04 20 00.AB9	WEEP HOLE/VENT
04 20 00.AD0	CAVITY DRAINAGE MATERIAL
05 40 00.AD1	COLD-FORMED METAL FRAMING
05 50 00.AD1	MISC STEEL FRAMING/SUPPORTS
05 50 00.AD2	LOOSE STEEL LINTEL
06 10 00.A18	WOOD BLOCKING/NAILERS
06 10 00.A16	FIRE-RETARDANT TREATED WOOD BLOCKING & NAILERS
06 10 00.A19	PLYWOOD BLOCKING AND BACKING PANELS
06 16 00.AD4	GLASS-MAT GYPSUM WALL SHEATHING
06 40 28.A20	SOLID SURFACE SILLS
07 21 00.AD1	EXTRUDED POLYSTYRENE BOARD INSULATION
07 21 00.A12	SPRAY-IN FOAM INSULATION
07 21 00.A17	MINERAL WOOL
07 27 29.AD1	VAPOR RETARDING AIR BARRIER COATING
07 27 68.AD2	TRANSITION MEMBRANE
07 62 00.AD1	UNDERLAYMENT
07 62 00.AB5	PRE-FINISHED MISC METAL FLASHING
07 92 00.AD1	SEALANT
07 92 00.AD2	SEALANT W/BACKER ROD
05 41 15.AD1	STOREFRONT FRAMING (THERMAL BROKEN)
05 41 15.AD2	STOREFRONT FRAMING (NON-THERMAL BROKEN)
05 41 15.AD7	ALUMINUM SUBSILL
05 41 15.A11	JAMB CLOSURE MEMBRANE
09 21 16.AD1	NON-STRUCTURAL FRAMING
09 29 00.AD2	GYPSUM BOARD - TYPE X
09 29 00.AD6	MOLD AND MOISTURE RESISTANT GYPSUM BOARD
09 29 00.A11	GYPSUM BOARD TRIM
10 22 19.AD1	DEMOUNTABLE PARTITION
10 22 58.AD3	VERTICAL-FOLDING OPERABLE PARTITION
12 52 00.AD4	SOLID SURFACING COUNTERTOPS

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11/13/18

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DOOR & WINDOW DETAILS

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MATERIAL FINISH LEGEND

ID	KEYNOTE	MANUFACTURER	MATERIAL	MATERIAL	REMARKS
ACT1	09 51 13.A01	USG	STYLE: ASTRO CLIMA PLUS 2221; SIZE: 2' X 2'; SQUARE EDGE	ACOUSTICAL LAY-IN CEILING	
ACT2	09 51 13.A01	USG	STYLE: ASTRO CLIMA PLUS (6241) SIZE: 2'X4'; SQUARE EDGE	ACOUSTICAL LAY-IN CEILING	
C1	09 68 13.A01	SHAW CONTRACT	STYLE: TRACK 5T204; COLOR: STRATEGY 04555; SIZE: 50.5CM X 121.9CM (CUSTOM IN ANTRON); INSTALLATION METHOD: ASHLAR	CARPET	INSTALL PATTERN TO RUN E/W
C2	09 68 13.A01	SHAW CONTRACT	STYLE: TURN 5T205; COLOR: STRATEGY 04555; SIZE: 50.5CM X 121.9CM (CUSTOM IN ANTRON); INSTALLATION METHOD: ASHLAR	CARPET	INSTALL PATTERN TO RUN E/W
C3	09 68 13.A01	SHAW CONTRACT	STYLE: DASH 5T203; COLOR: STRATEGY 04555; SIZE: 50.5CM X 121.9CM (CUSTOM IN ANTRON); INSTALLATION METHOD: ASHLAR	CARPET	INSTALL PATTERN TO RUN E/W
C4	09 68 13.A01	SHAW CONTRACT	STYLE: TURN 5T205; COLOR: CUSTOM BLUE COLOR; SIZE: 50.5CM X 121.9CM (CUSTOM IN ANTRON); INSTALLATION METHOD: ASHLAR	CARPET	INSTALL PATTERN TO RUN E/W
C5	--	NOT USED			
C6	--	NOT USED			
C7	09 68 13.A01	TANDUS CENTIVA	STYLE: LIVE WIRE CUSTOM #1023053-002; COLOR: STORMY SKY IN ANTRON; SIZE: 24" X 24"; INSTALLATION METHOD: VERTICAL ASHLAR	CARPET	INSTALL PATTERN TO RUN E/W
C8	09 68 13.A01	TANDUS CENTIVA	STYLE: THIN LINES CUSTOM #1023053-001; COLOR: STORMY SKY IN ANTRON; SIZE: 24" X 24"; INSTALLATION METHOD: VERTICAL ASHLAR	CARPET	INSTALL PATTERN TO RUN E/W
C9	09 68 13.A01	INTERFACE	STYLE: DRIFTWOOD - ANTRON - CUSTOM#2673353-007; COLOR: LINDEN; SIZE: 25CM X 1M; INSTALLATION METHOD:ASHLAR	CARPET	INSTALL PATTERN TO RUN E/W
C10	09 68 13.A01	INTERFACE	STYLE: DRIFTWOOD - ANTRON - CUSTOM#2673353-005; COLOR: OAK; SIZE: 25CM X 1M; INSTALLATION METHOD:ASHLAR	CARPET	INSTALL PATTERN TO RUN E/W
C11	--	--	NOT USED		
C12	--	--	NOT USED		
C13	09 68 13.A01	MATERHOG	STYLE: GEOMETRIC PATTERN; COLOR: CHARCOAL; SIZE: 18"X18"; INSTALLATION METHOD: QUARTER TURN	WALK-OFF CARPET	
DFP1	09 91 23.A01	DRYFALL PAINT	SW7068 ARGOS	DRYFALL PAINT	
EP1	--	NOT USED	NOT USED		
FT1	09 67 23.A01	DUR-A-FLEX	STYLE: DUR-A-CHIP; COLOR: CUSTOM BLEND TBD UP TO 4 COLORS	RESINOUS FLOOR	
P1	09 91 23	SHERWIN WILLIAMS	SW6258 OLYMPUS WHITE	PAINT	
P2	09 91 23	SHERWIN WILLIAMS	SW7068 ARGOS	PAINT	
P3	09 91 23	SHERWIN WILLIAMS	SW9053 AGUA FRIA	PAINT	
P4	09 91 23	SHERWIN WILLIAMS	SW6501 MANITOU BLUE	PAINT	
P5	09 91 23	SHERWIN WILLIAMS	SW7018 DOVETAIL	PAINT	
PL1	123200 / 064023	WILSONART	BEIGEWOOD 7030-60 MATTE FINISH	PLATIC LAMINATE	
PL2	123200 / 064023	WILSONART	STEEL MESH 4879-38 MATTE FINISH	PLASTIC LAMINATE	
PL3	--	--	NOT USED		
RB1	09 65 13.A01	ROPPE	175 SLATE, 4" BASE WITH TOE	RUBBER BASE	
RT1	09 65 19.A01	NORA	STYLE: NORAPLAN ENVIROCARE; COLOR: SMOKY FENNEL 2951; SIZE: 24"X24"; 3MM	RESILIENT TILE	
SC	03 30 00.A21		SEALED CONCRETE	SEALED CONCRETE	
SS1	06 40 23 / 12 32 00	FORMICA	GLASSIGS; COLOR: LUNA STORM 7TS; 1/2" THICKNESS	SOLID SURFACE	
T1	09 30 00.A01	CROSSVILLE	STYLE: READY TO WEAR; COLOR: SMARTY PANTS CRVAVS161224; SIZE: 12" X 24"	PORCELAIN TILE	
WC1	--	--	NOT USED		
WP1	09 77 23.A01	CARNEGIE XOREL	STYLE: SWITCH 6237; COLOR: 20	FABRIC WRAPPED PANEL	
WP2	09 77 23.A01	MAHARAM	STYLE: MANNER 466177; COLOR: TBD	FABRIC WRAPPED PANEL	
WP3	09 77 23.A01	MAHARAM	STYLE: MANNER 466177; COLOR: COTTAGE	FABRIC WRAPPED PANEL	
WP4	--	--	NOT USED	FABRIC WRAPPED PANEL	
WP5	--	--	NOT USED	FABRIC WRAPPED PANEL	

ROOM FINISH SCHEDULE

ROOM		FLOOR		WALLS				CEILING	
NO	Name	Finish	Base	North	East	South	West	Finish	Finish Notes
Brd	xB4	--	--	--	WP1	--	--	--	
A101	Collab	REF. FIN. FLR.	RB1	P1	P1	P1	PL1	ACT1	
A102	Classroom	REF. FIN. FLR.	RB1	P1	P4	P1	P1	ACT1/DFP 1	
A103	Classroom	REF. FIN. FLR.	RB1	P1	P1	P1	P4	ACT1/DFP 1	
A104	Mech	--	--	--	--	--	--	--	
A105	Collab	REF. FIN. FLR.	RB1	P3	P3	P3	P3	ACT1	
A106	Vestibule	REF. FIN. FLR.	RB1	--	P1	P1	P1	P1	
A107	Classroom	REF. FIN. FLR.	RB1	P1	P1/P2	P2/P4	P1	P1/DFP1	
A108	Collab	REF. FIN. FLR.	RB1	P3	P3	P3	P3	ACT1	
A109	Classroom	REF. FIN. FLR.	RB1	P2/P4	P1/P2	P1	P1	P4/DFP1	
A110	Classroom	REF. FIN. FLR.	RB1	P1	P1/P2	P2/P4	P1	P4/DFP1	
A111	Collab	REF. FIN. FLR.	RB1	P3	P3	P3	P3	ACT1	
A112	Classroom	REF. FIN. FLR.	RB1	P2/P4	P1/P2	P1	P1	P1/DFP1	
A113	Vestibule	REF. FIN. FLR.	RB1	P1	P1	--	P1	P1	
A114	Flex	REF. FIN. FLR.	RB1	REF. INT. ELEV.	REF. INT. ELEV.	REF. INT. ELEV.	REF. INT. ELEV.	REF. RCP.	
A115	RR	FT1	FT1	T1	T1	T1	T1	P3	3
A116	Custodial	SC	RB1	P1	P1	P1	P1	--	1
A117	Toilet	FT1	FT1	T1	T1	T1	T1	P3	3
A118	Toilet	FT1	FT1	T1	T1	T1	T1	P3	3
A119	Toilet	FT1	FT1	T1	T1	T1	T1	P3	3
A120	Toilet	FT1	FT1	T1	T1	T1	T1	P3	3
A121	Toilet	FT1	FT1	T1	T1	T1	T1	P3	3
A122	Toilet	FT1	FT1	T1	T1	T1	T1	P3	3
A123	Elec.	SC	RB1	--	--	--	--	--	2
A124	Hub	SC	RB1	--	--	--	--	--	2
A125	Mechanical Courtyard	--	--	--	--	--	--	--	4
A128	xCorridor	--	--	--	--	--	--	ACT2	4
A129	xCorridor	--	--	--	--	--	--	ACT2	4
A130	xCorridor	--	--	--	--	--	--	ACT2	4
B1	x2nd	--	--	--	WP1	--	--	--	
B3	x2nd	--	--	--	WP1	--	--	--	
C11-1	xESOL	--	--	--	--	--	--	--	
C11-2	xResource	--	--	WP1	--	--	--	--	
C12	x4th	--	--	--	--	--	--	ACT2	4
C13	x4th	--	--	--	--	--	--	ACT2	4

GENERAL FINISH NOTES

1. REFER TO FINISH FLOOR PLANS, REFLECTED CEILING PLANS, ELEVATIONS, AND DETAILS FOR EXTENT OF MULTIPLE FINISHES.
2. DO NOT PAINT NATURAL OR MANUFACTURED STONE, BRICK, GLAZED BLOCK OR ANY OTHER PREFINISHED MATERIALS.
3. DO NOT PAINT ALUMINUM OR OTHER NON-FERROUS METALS THAT ARE PREFINISHED.
4. MATCH VERTICAL FINISH OF ALL INTERIOR GYPSUM BOARD SOFFITS TO HORIZONTAL FINISH AS NOTED ON RCP OR ROOM FINISH SCHEDULE, UNO.
5. PAINT ALL EXPOSED CEILINGS DESIGNATED AS 'OTS' AS INDICATED ON ROOM FINISH SCHEDULE. PAINTING INCLUDES, BUT IS NOT LIMITED TO: EXPOSED STRUCTURE, JOISTS, METAL DECKING, EXISTING TECTUM PANELS, DUCTWORK AND MECHANICAL EQUIPMENT.
6. PAINT ALL EXPOSED STEEL, UNO.
7. PAINT ALL INTERIOR HOLLOW METAL DOORS AND FRAMES COLOR P5, UNO.
8. PAINT OR FINISH THE FOLLOWING ITEMS TO MATCH ADJACENT PAINT OR FINISH:
   a. ELECTRICAL PANELS IN FINISHED ROOMS
   b. GRILLES, LOUVERS ETC. PRIMED OR SPECIFIED TO BE PAINTED
   c. UNFINISHED SPEAKER OUTLET GRILLES
   d. VISIBLE PORTIONS OF DUCTWORK AND MECH EQUIPMENT BEHIND VENTS, GRILLES AND DIFFUSERS
9. REFER TO A601A FOR ALL SMB & MB LOCATIONS.
10. REFER TO SHEETS A601 - A601C FOR ALL CORNER GUARD (CG TYPES 1-6, 10 26 00.A03) LOCATIONS.

ROOM SCHEDULE REMARKS

1. INSTALL 06 64 00.A01 FRP WALL PANELS @ MOP SINK; PANELS TO EXTEND 4'-0" AFF & 1'-0" BEYOND FRONT EDGE OF MOP SINK ON EITHER SIDE. ALL EXPOSED EDGES OF FRP PANELS ARE TO RECEIVE METAL EDGE TRIM.
2. ALL WALLS TO RECEIVE 5/4" PLYWOOD UP TO 8'-0".
3. 09 30 00.A04 - INSTALL TYPE1 @ ALL HORIZONTAL TRANSITIONS FROM TILE TO ANOTHER MATERIAL. INSTALL TYPE 2 @ ALL VERTICAL OUTSIDE CORNERS AND TRANSITIONS FROM TILE TO ANOTHER MATERIAL.
4. REPLACED DAMAGED CEILING TILES AS NECESSARY IN EXISTING CLASSROOMS.

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Construction Documents

Valley Park Elementary School Addition
Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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A681

MATERIAL FINISH LEGEND & ROOM FINISH SCHEDULE

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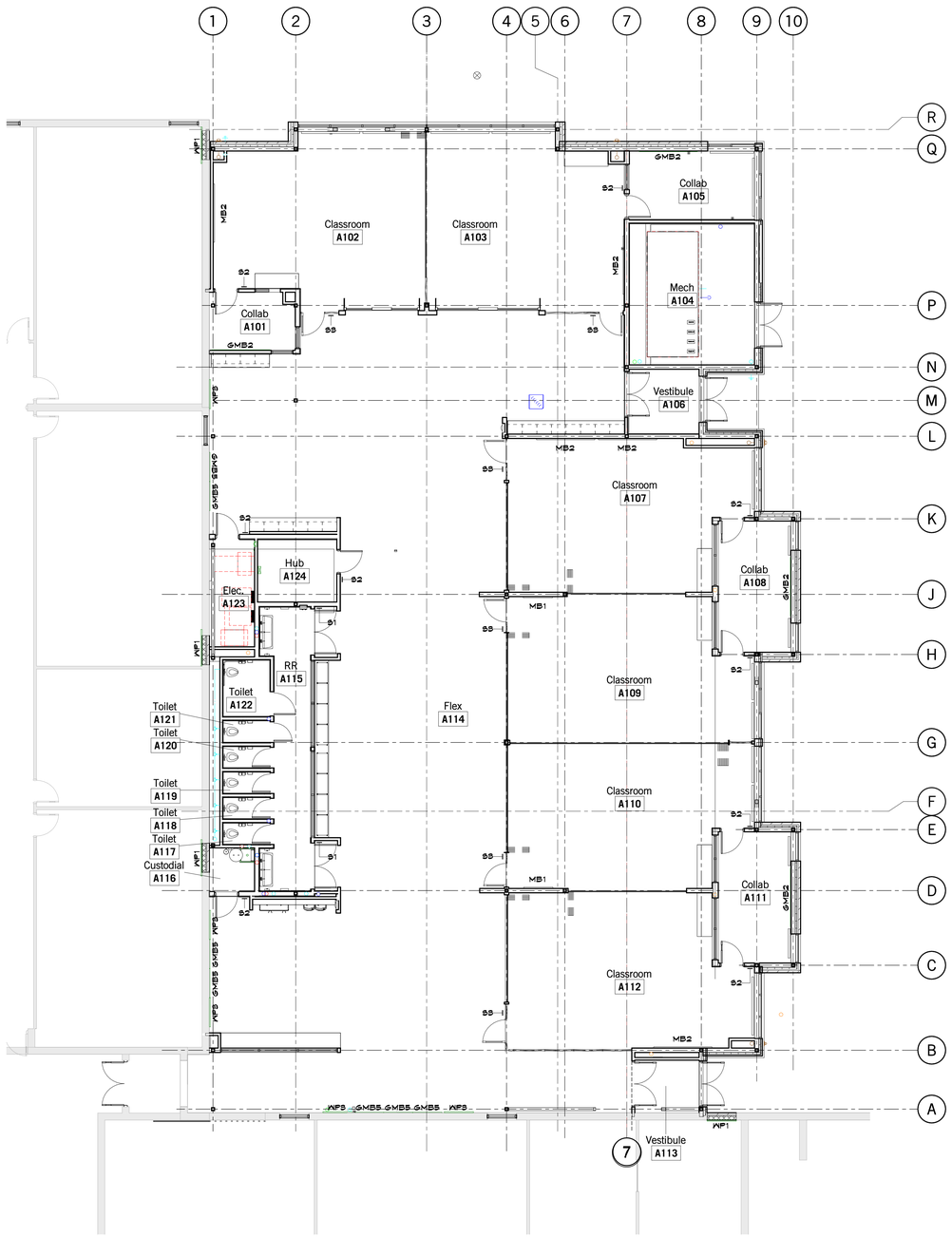
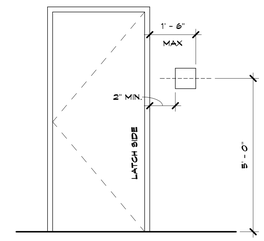
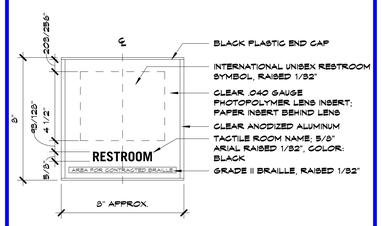


1 Scale 1/8" = 1'-0" — Signage Floor Plan - Level 1 - Area A

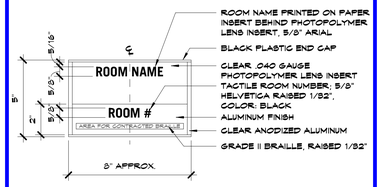
Signage Schedule					
Architectural Room #	Type Mark	Room Name On Drawings	Room Name On Sign	Room # On Sign	Comments
A101	S2	Collab	Collab	A101	
A102	S3	Classroom	Classroom	A102	
A103	S3	Classroom	Classroom	A103	
A105	S2	Collab	Collab	A105	
A107	S3	Classroom	Classroom	A107	
A108	S2	Collab	Collab	A108	
A108	S2	Collab	Collab	A108	
A109	S3	Classroom	Classroom	A109	
A110	S3	Classroom	Classroom	A110	
A111	S2	Collab	Collab	A111	
A111	S2	Collab	Collab	A111	
A112	S3	Classroom	Classroom	A112	
A114	S1	Flex	Restroom		
A116	S2	Custodial	Custodial	A116	
A123	S2	Elec.	Electrical	A123	
A124	S1	Hub	Restroom		
A124	S2	Hub	Hub	A124	



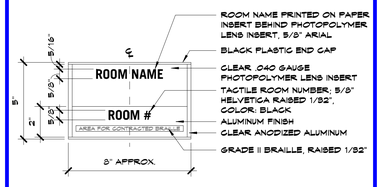
K11 Scale 1/2" = 1'-0" — Typ. Elevation - Signage Mounting



G11 Scale 3" = 1'-0" — TYPE S1 - RESTROOM SIGNAGE



D11 Scale 3" = 1'-0" — TYPE S2 - ROOM SIGNAGE



NOTE: MOUNTED TO GLASS; PROVIDE BACK PLATE AND INSTALL ON OPPOSITE FACE OF GLASS

A11 Scale 3" = 1'-0" — TYPE S3 - ROOM SIGNAGE, GLASS MOUNT

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Construction Documents

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REVISIONS:

#	Description	Date
1	Addendum #1	11.20.2018

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A801 1

SIGNAGE

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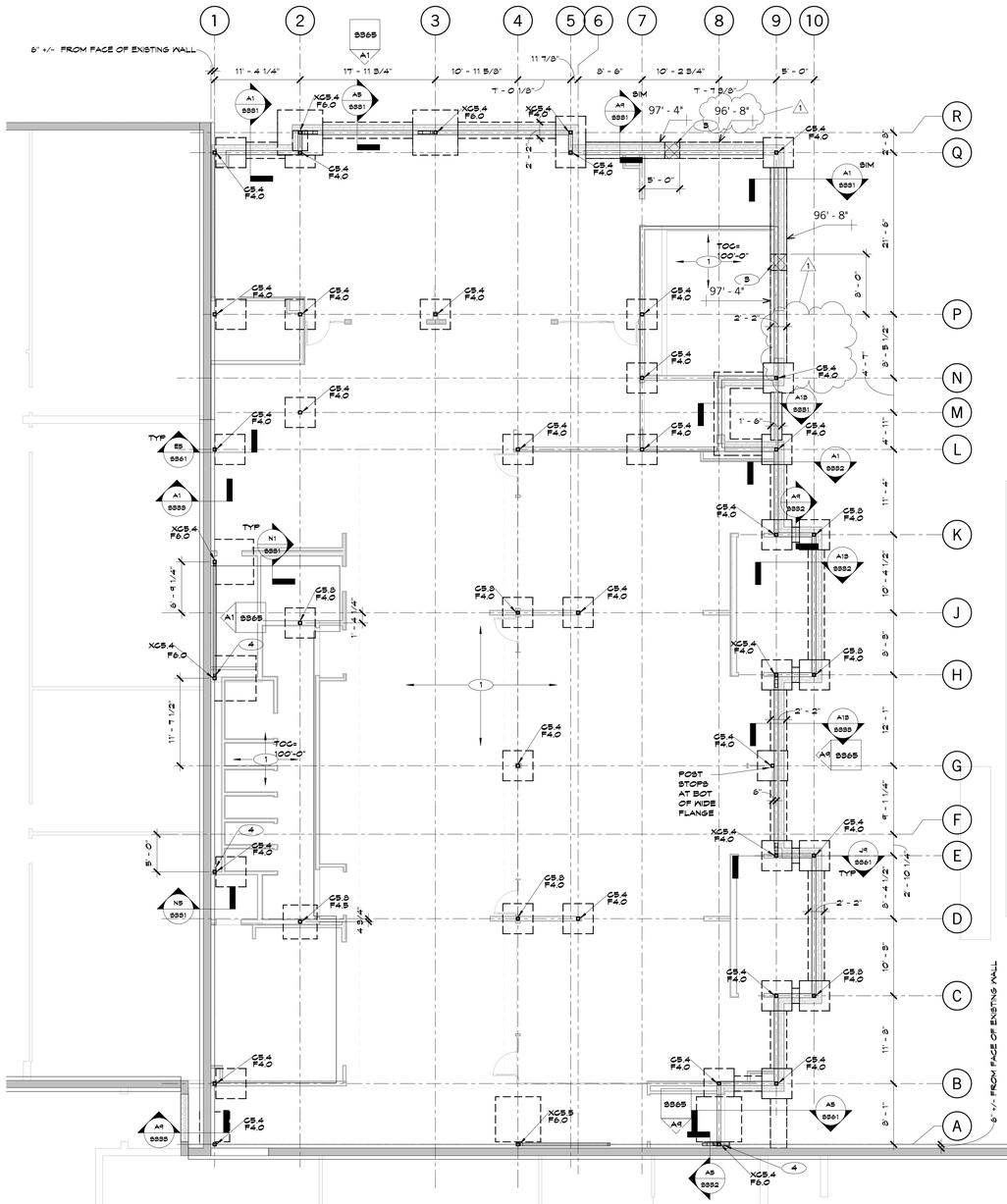
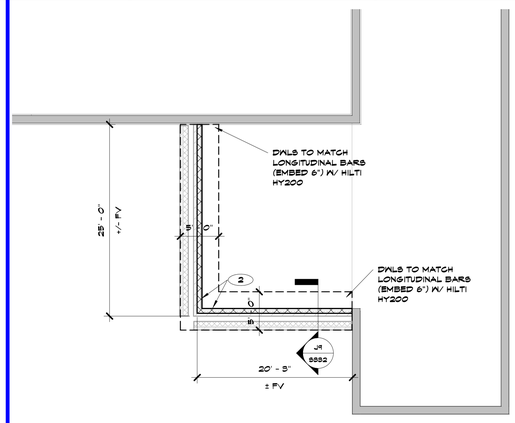


A1	Scale 1/8" = 1'-0"	Foundation Plan



M12	Scale 1/8" = 1'-0"	Foundation Plan

Structural Foundation Schedule

Type	Size	Reinforcement Size	Reinforcement Placement
F4.0	4'-0 x 4'-0 x1'-4"	6-#6 EW	BOT
F4.5	4'-6 x 4'-6 x 1'-6"	6-#6 EW	BOT
F6.0	6'-0 x 6'-0 x 1'-6"	9-#6 EW	TOP & BOT

Structural Column Schedule

Type	Size	Anchor Rods	Base Plate
C5.4	HSS5x5x1/4	AR-1	1X11X11
C5.8	HSS5x5x1/2	AR-1	1X11X11
XC5.4	HSS5x5x1/4	AR-2	1X12X19
XC5.5	HSS5x5x5/16	AR-2	1X12X19

PLAN REFERENCE NOTES

1. 5" CONCRETE SLAB ON GRADE WITH 15 MIL VAPOR RETARDER AND 4" CRUSHED ROCK DRAINAGE FILL PER SPECIFICATION. REINFORCE PER TYPICAL DETAILS. TOP OF CONCRETE ELEVATION =98'-0" UNO
2. 4-4-4 DOUBLE WYTHE GROUTED BRICK WALL. REINFORCE WITH #6 AT 8" ON CENTER EW IN FULLY GROUTED COLLAR JOINT
3. GRADE BEAM FOOTING STEP PER N9/S361
4. FIELD VERIFY LOCATION OF EXISTING GRADE BEAM. POST INSTALL NEW ANCHOR BOLTS WITH HILTI HY200 (EMBED 12") IF MINIMUM COVER OF 4" CAN BE ACHIEVED IN EXISTING FOOTING. IF 4" MINIMUM CONCRETE COVER CANNOT BE ACHIEVED IN EXISTING GRADE BEAM, DEMO PORTION OF GRADE BEAM AND INSTALL NEW ANCHOR RODS IN NEW CONCRETE WITH MINIMUM 4" SIDE COVER.

FOUNDATION NOTES

A. TOP OF FOOTING ELEVATION = 97'-4" UNO
B. INTERIOR NON LOAD BEARING CMU NOT SHOWN. SEE ARCHITECTURAL DRAWINGS FOR ALL WALL LOCATIONS. PROVIDE TYPICAL THICKENED SLAB DETAIL J9/S361 AT ALL NON LOAD BEARING CMU WALL LOCATIONS.
C. REFERENCE ARCHITECTURAL FOR EXTENT AND ELEVATION OF BRICK LEDGE

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Valley Park Elementary School Addition

Blue Valley School District

12301 Lamar Ave.
Leawood, KS 66209

Project Number: VPE-1901

Construction Documents

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John E. Funk
15824

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S101A

FOUNDATION PLAN - AREA A - LEVEL1

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GENERAL MECHANICAL NOTES

1. ALL DUCTWORK AN ACCESSORIES SHOWN WITH DASHED LINES SHALL BE ROUTED IN THE UNDERFLOOR PLENUM.
2. ALL DUCTWORK SHALL BE COORDINATED WITH THE FLOOR SUPPORT LEGS AND MOUNTING SYSTEM.
3. DIFFUSERS SHALL NOT BE MOUNTED IN THE ACCESS FLOORING DIRECTLY ABOVE A SECTION OF DUCTWORK TO ENSURE AIRFLOW IS NOT LIMITED TO THE DIFFUSER.
4. COORDINATE UNDERFLOOR PLENUM ROUTING AND PATHS WITH ALL OTHER DISCIPLINES.

MECHANICAL PLAN NOTES

M1 ALL FLOOR DIFFUSERS SHALL BE MOUNTED IN THE CENTER OF 2'X2' ACCESS FLOOR PANELS.

M2 RETURN GRILL SHALL BE MOUNTED TO THE CLASSROOM SIDE OF SLOPED GYP CEILING OF COLLAB SPACE TO CREATE A RETURN PATH FROM COLLAB SPACE TO CLASSROOM.

M3 14"X14" DUCT UP TO EF-1 MOUNTED ON ROOF.

M4 42"X16" RETURN DUCT SHALL TAP FROM MAIN 62"X18" RETURN DUCT AND OFFSET UP AS NEEDED TO PENETRATE SOFFIT IN CLASSROOM A107. AREA IN FRONT OF DUCT PENETRATION IN CLASSROOM A107 SHALL BE KEPT FREE FROM BY ALL OTHER TRADES TO ALLOW FOR CLEAR RETURN PATH. BALANCE BRANCH DAMPER TO 4500 CFM.

M5 62"X18" SHALL OFFSET UP TO BE TIGHT TO STRUCTURE BEFORE ENTERING FLEX A114.

M21 MOUNT RG-3 AS HIGH AS ALLOWED TO STILL MAINTAIN A DUCTED TRANSFER CONNECTION TO ADJACENT PLENUM.

M23 MAINTAIN CLEAR WALL SPACE FOR NEW JACE CONTROLLER TO BE WALL MOUNTED.

M24 REFER TO ARCHITECTURAL DRAWINGS FOR FINALIZED LOCATION OF LOUVER. TRANSITION DUCTWORK UP QUICKLY TO MAINTAIN HEAD CLEARANCE AND SERVICE CLEARANCE IN MECHANICAL ROOM.

M25 SENSORS SHALL BE MOUNTED IN UNDERFLOOR PLENUM. REFER TO AHU CONTROL SEQUENCE (M602).

M26 UNDERFLOOR PLENUM PRESSURE SENSORS FOR AHU FAN SPEED CONTROL. REFER TO AHU CONTROL SEQUENCE (M602).

M27 MOUNT RETURN GRILLE AND ASSOCIATED DUCT IN LOWER SOFFIT CEILING. VERIFY ARCHITECT HAS PROVIDED FREE AIR PATH BACK TO MAIN DUCT CONNECTION ABOVE SOFFIT IN CLASSROOM A107.

M28 BASEBOARD HEATERS SHALL BE WALL MOUNTED UNDERNEATH THE WINDOW SO THE TOP GRILL OF HEATER IS FLUSH WITH LEDGE OF WINDOW SILL. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL MOUNTING DETAILS.

M29 BALANCE DAMPER TO 1550 CFM.

M30 BALANCE DAMPER TO 775 CFM.

M31 20"X60" SUPPLY DUCT RUNNING PARALLEL WITH UNIT. ALL 7 BRANCH DUCTS SHALL TAP OFF BOTTOM OF 20"X60" SUPPLY MAIN AND TURN DOWN INTO THE UNDERFLOOR PLENUM. ENSURE PLENUM IS SEALED AROUND ALL BRANCH DUCTS WHEN ENTERING UNDERFLOOR PLENUM.

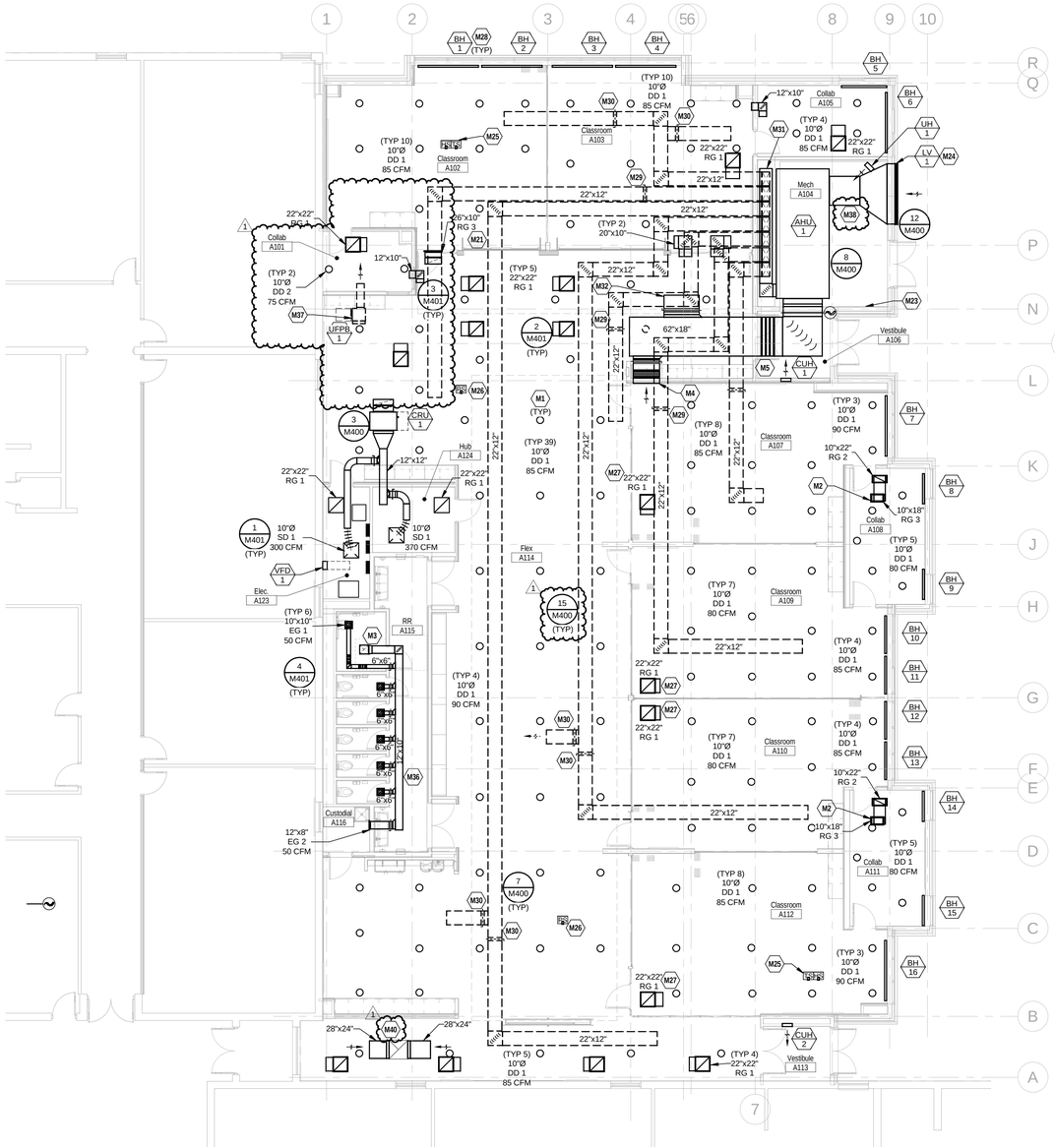
M32 56"X16" RETURN DUCT TAPPING INTO 62"X18" RETURN MAIN. BALANCE BRANCH DAMPER TO 6350 CFM.

M36 PROVIDE REMOTE DAMPERS FOR EXHAUST SYSTEM AND COORDINATE WORM GEAR ACCESS THROUGH THE FACE OF THE GRILLE FOR DAMPER ADJUSTMENT.

M37 UFPB-1 SHALL BE MOUNTED IN THE UNDERFLOOR PLENUM. COLLAB A101 SHALL BE AN SEALED AND ISOLATED PLENUM FROM THE REST OF THE ADDITION. SUPPLY DUCT PENETRATION INTO SPACE SHALL BE SEALED.

M38 SPLIT DUCT PRIOR TO UNIT CONNECTION. PROVIDE AIRFLOW MEASURING STATION IN MINIMUM OUTSIDE AIR DUCT.

M40 30"X30" EXHAUST DUCT UP TO RF-1 ON ROOF. REFER TO MP100A FOR CONTINUATION.



1 HVAC LEVEL 1 PLAN - AREA A
1/8" = 1'-0"

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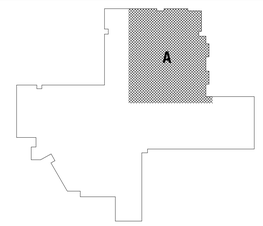
KEY PLAN



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DATE: 11.13.2018

M101

HVAC LEVEL 1 PLAN - AREA A

CARL J. HOLDEN

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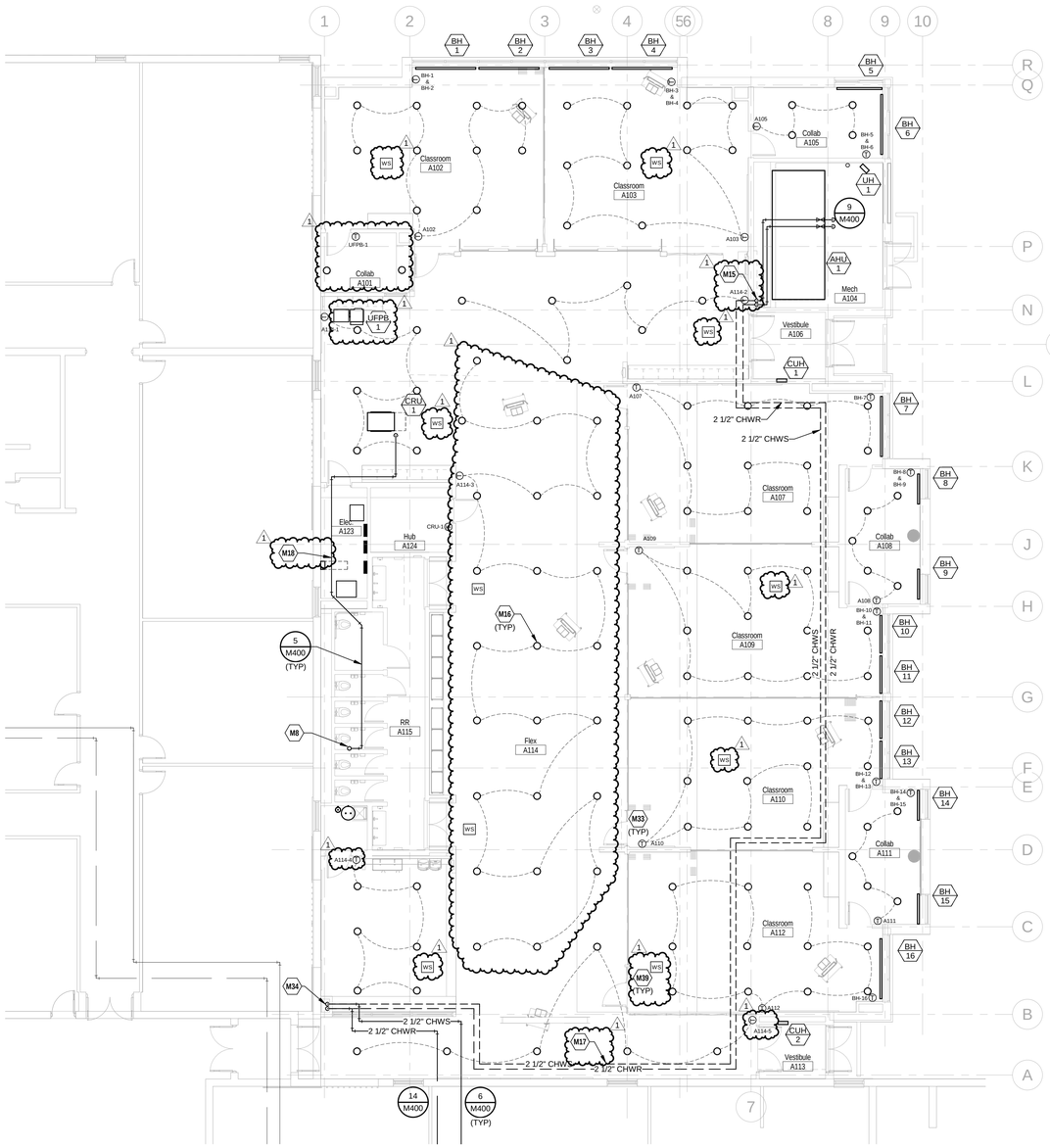
GENERAL MECHANICAL NOTES

1. DASHED LINES SHOW ZONING PLANS OF MODULATING DIFFUSERS TO RESPECTIVE THERMOSTAT. DESIGN OF ZONES WAS BASED ON CAPACITIES OF PRICE UMC3 UNDERFLOOR CONTROLLERS.

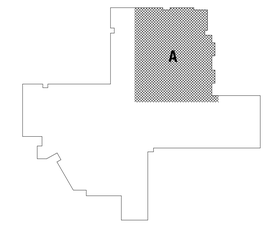
MECHANICAL PLAN NOTES

M8 REFRIGERANT LINES UP THROUGH ROOF TO RESPECTIVE CONDENSING UNIT.
M15 ROUTE PIPING UP FROM ACCESS FLOOR PLENUM AND OVER THE TOP OF UNIT TO CHILLED WATER COIL CONNECTIONS.
M16 PROVIDE 10' OF EXTRA CONTROL CABLE AT EACH FLOOR DIFFUSER TO ALLOW FOR EASY RELOCATION IN FUTURE APPLICATIONS. NEATLY SPOOL AND SECURE CABLE SLACK IN UNDERFLOOR PLENUM.
M17 COORDINATE ROUTING WITH UNDERFLOOR DUCT RUNS AND MOUNT PIPING AS LOW AS POSSIBLE IN PLENUM TO AVOID CONFLICTS WITH DIFFUSER BASKETS.
M18 ROUTE REFRIGERANT ABOVE STORM PIPING TO UTILIZE SAME DRIP PANS BEING USED FOR STORM SYSTEM.
M33 LOCATE THE POWER AND CONTROL MODULE NEAR THE THERMOSTAT IN THE UNDERFLOOR PLENUM.
M34 ROUTE CHILLED WATER SUPPLY AND RETURN PIPE DOWN CHASE TO UNDERFLOOR PLENUM.
M39 UNDERFLOOR PLENUM WATER SENSOR SHALL BE LOCATED NEAR PLENUM DRAINS. COORDINATE WITH PLUMBING DRAWINGS.



1 PIPING LEVEL 1 PLAN - AREA A
1/8" = 1'-0"

KEY PLAN



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M201A

PIPING LEVEL 1 PLAN - AREA A

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MECHANICAL PLAN NOTES

M7 SUPPORT CHILLED WATER SUPPLY AND RETURN FROM EXISTING BUILDING WALL. ROUTE IN A STACKED FORMAT AT ELEVATIONS TO TIE INTO EXISTING SUPPLY AND RETURN PIPES.

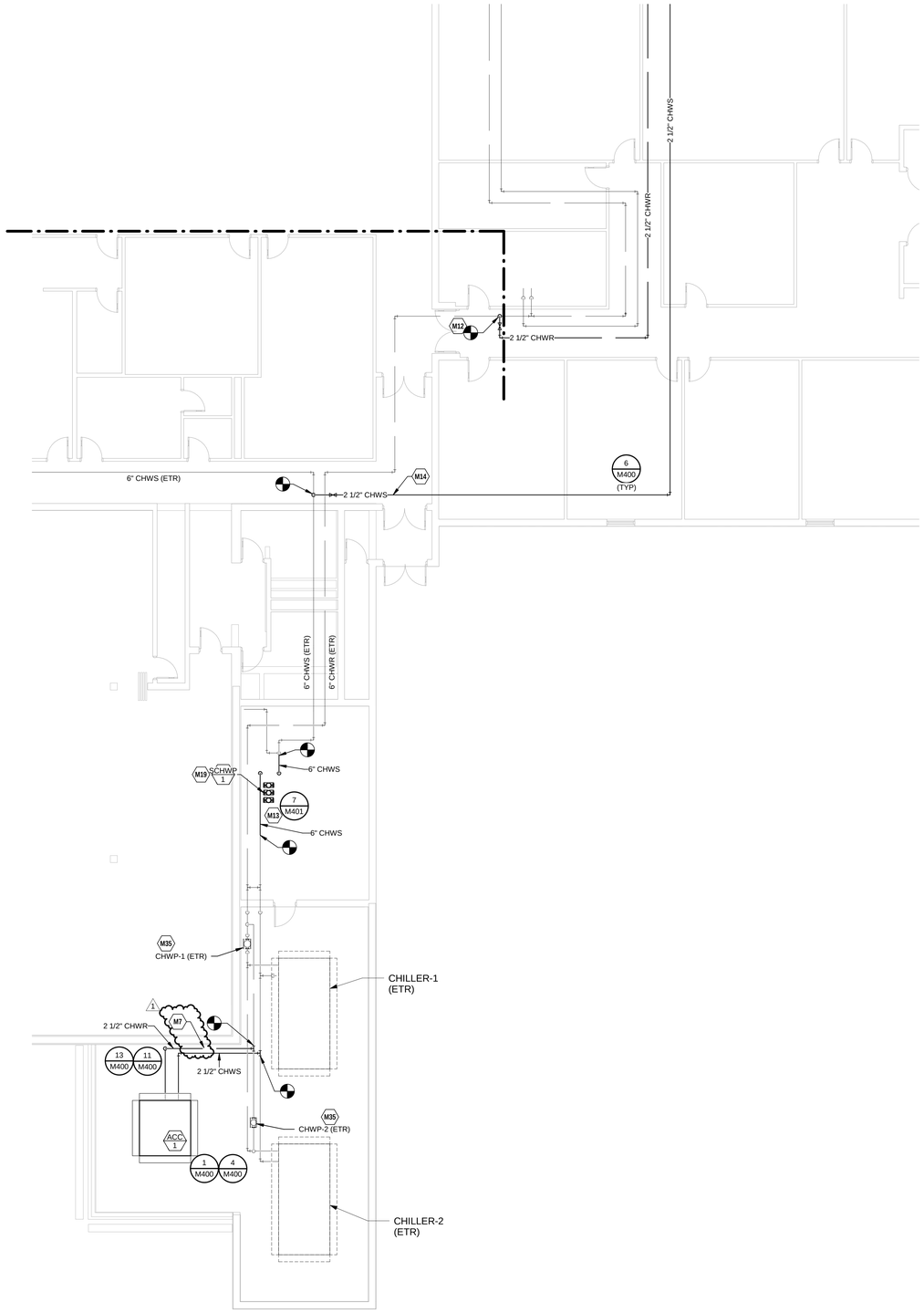
M12 CONNECT NEW 2-1/2" CHWR PIPE TO EXISTING 6" CHWR PIPE. RAISE EXISTING DUCTWORK AS NECESSARY IN AREA FOR NEW CHWR PIPE CONNECTION.

M13 NEW SCHWP SKID SHALL BE MOUNTED ON A NEW EQUIPMENT PAD IN SPACE. ENSURE PAD IS POURED 30" OUT FROM WEST WALL TO AVOID CONFLICT WITH EXISTING FLOOR DRAIN. SHIFT EXISTING OFFSET IN EF-15 DUCT RUN UP 1' TO ALLOW MORE ROOM FOR CONTROL PANEL TO BE INSTALLED ON THE LEFT SIDE OF PUMP SKID.

M14 COORDINATE NEW 2-1/2" CHWS PIPE WITH NEW FIRE RISER ROUTING TO MINIMIZE CEILING REWORK.

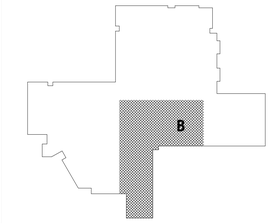
M19 PACKAGED PUMP SYSTEM SHALL BE PROVIDED WITH HEADERS. ROUTE NEW 6" CHWS AND 6" CHWR DOWN TO MAKE CONNECTIONS TO FLANGED HEADER. MAINTAIN REQUIRED CLEARANCES FOR PACKAGED PUMP SYSTEM.

M35 PRE-TEST PUMPS FOR CURRENT FLOW RATES AND REBALANCE PUMPS TO THIS FLOW RATE AFTER NEW WORK.



1 PIPING LEVEL 1 PLAN - AREA B
1/8" = 1'-0"

KEY PLAN N



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1850002296
KS. CORPORATE NO: E-325
EXPIRES 12/31/2020

Construction Documents

Valley Park Elementary School Addition
Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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JOB NO: 18027
DRAWN BY: Author
CHECKED BY: Checker
DATE: 11.13.2018

M201B

PIPING LEVEL 1 PLAN - AREA B

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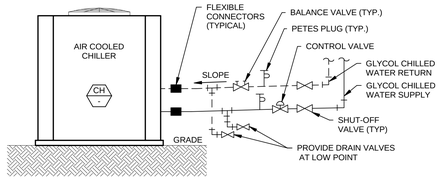
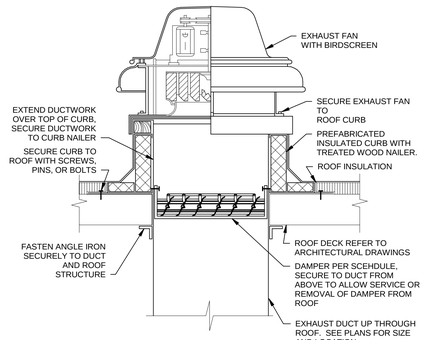
CARL J. HOLDEN

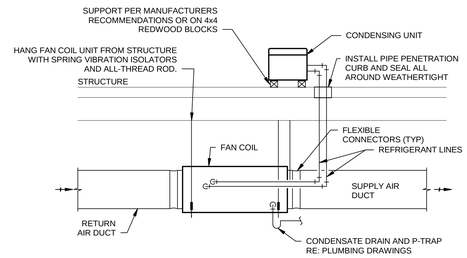


NOTES:
1. SET UNIT ON CONCRETE HOUSEKEEPING PAD WITH NEOPRENE ISOLATORS.

1 CHILLED WATER CONNECTION AT AIR COOLED CHILLER
NTS

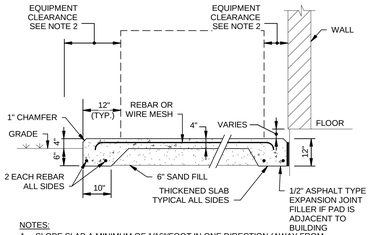


2 DOWNBLAST EXHAUST FAN DETAIL
NTS



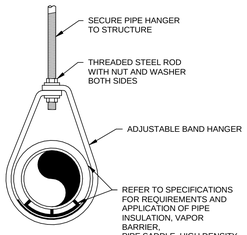
NOTES:
1. ARRANGEMENT SHOWN IS SCHEMATIC, ADJUST TO SUIT FIELD CONDITIONS OR MEET LOCAL CODE REQUIREMENTS.

3 HORIZONTAL DX FAN COIL UNIT DETAIL WITH CONDENSING UNIT ON ROOF
NTS

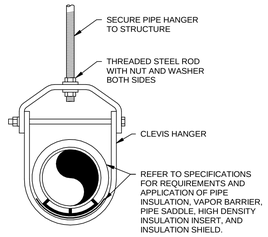


NOTES:
1. SLOPE SLAB A MINIMUM OF 1/16"/FOOT IN ONE DIRECTION (AWAY FROM BUILDING) FOR DRAINAGE.
2. PROVIDE MINIMUM CLEARANCE AROUND EQUIPMENT, ALL SIDES, PER MANUFACTURER.
3. DIMENSIONS SHOWN ARE MINIMUM ACCEPTABLE; REVISE AS REQUIRED FOR EQUIPMENT BEING PROVIDED.
4. WHERE WALL DOES NOT EXIST, INSTALL EQUIPMENT IN CENTER OF PAD AND ENCLOSE AS SHOWN ON ARCHITECTURAL DRAWINGS.

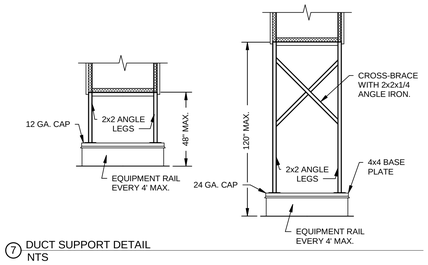
4 EXTERIOR EQUIPMENT PAD DETAIL
NTS



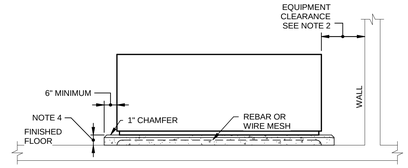
5 ADJUSTABLE BAND PIPE HANGER
NTS



6 CLEVIS PIPE HANGER DETAIL
NTS

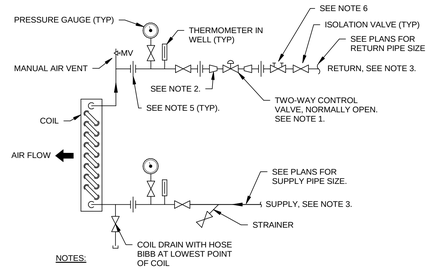


7 DUCT SUPPORT DETAIL
NTS



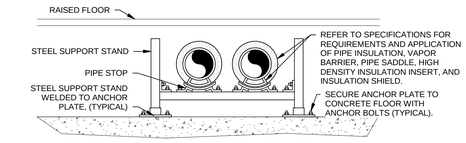
NOTES:
1. POUR SLAB FLAT WITH NO VALLEYS.
2. MINIMUM CLEARANCE AROUND EQUIPMENT, ALL SIDES, PER MANUFACTURER.
3. DIMENSIONS SHOWN ARE MINIMUM ACCEPTABLE; REVISE AS REQUIRED FOR EQUIPMENT BEING PROVIDED.
4. COORDINATE PAD HEIGHT WITH SPECIFICATIONS. USE MINIMUM 3-1/2" HEIGHT IF NOT SPECIFIED.

8 INTERIOR EQUIPMENT PAD DETAIL
NTS

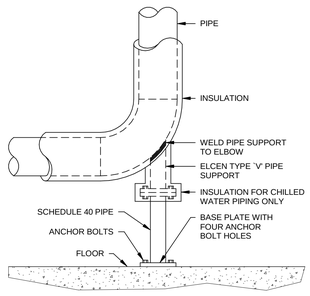


NOTES:
1. INSTALL CONTROL VALVE BETWEEN UNIONS OR FLANGES.
2. PROVIDE CONCENTRIC REDUCERS BOTH SIDES OF CONTROL VALVE AS REQUIRED.
3. WHEN TAPPED INTO TOP OF MAINS, AIR VENT REQUIRED.
4. ARRANGEMENT SHOWN FOR FULL FLOW THROUGH COIL ON FAILURE.
5. REPLACE UNION/FLANGE SET WITH FLEXIBLE PIPE CONNECTOR WHERE EQUIPMENT IS SUPPORTED OR SUSPENDED BY SPRING ISOLATORS.
6. PROVIDE WIDE-OPEN BALANCING VALVE FOR FLOW VERIFICATION ONLY.

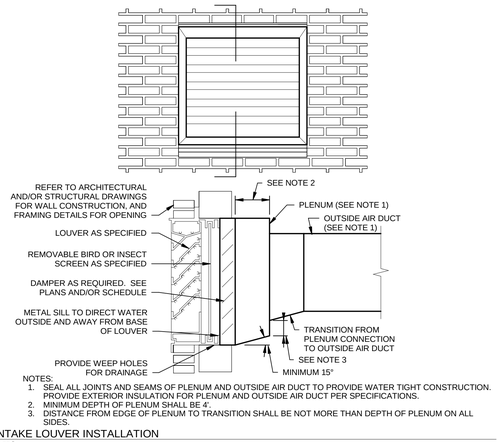
9 HYDRONIC COIL WITH TWO-WAY CONTROL VALVE PIPING DETAIL
NTS



10 MULTIPLE PIPE RAISED FLOOR SUPPORT DETAIL
NTS

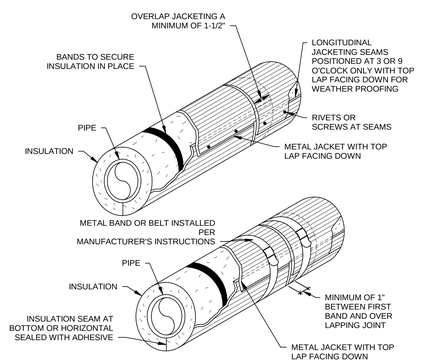


11 ELBOW PIPE SUPPORT DETAIL
NTS

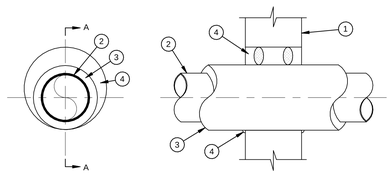


NOTES:
1. SEAL ALL JOINTS AND SEAMS OF PLENUM AND OUTSIDE AIR DUCT TO PROVIDE WATER TIGHT CONSTRUCTION. PROVIDE EXTERIOR INSULATION FOR PLENUM AND OUTSIDE AIR DUCT PER SPECIFICATIONS.
2. MINIMUM DEPTH OF PLENUM SHALL BE 4'.
3. DISTANCE FROM EDGE OF PLENUM TO TRANSITION SHALL BE NOT MORE THAN DEPTH OF PLENUM ON ALL SIDES.

12 INTAKE LOUVER INSTALLATION
NTS



13 FIELD APPLIED METAL JACKETING OVER PIPE INSULATION
NTS



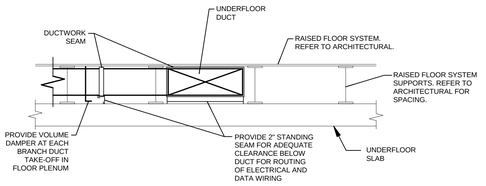
U.L. SYSTEM W-J-5013
"F" RATING - 1 & 2 HOUR
"T" RATING - 1 & 1/2 HOUR

SECTION A-A

NOTES:
1. WALL ASSEMBLY - MIN 4-1/2 IN. THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX DIAM OF OPENING IS 8-1/2 IN.
2. THROUGH PENETRANTS- ONE METALLIC PIPE OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
   A. STEEL PIPE - NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   B. COPPER TUBING - NOM 4 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
   C. COPPER PIPE - NOM 4 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
3. PIPE COVERING - NOM 1-1/2 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SSL TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. THE ANNULAR SPACE BETWEEN THE INSULATED PIPE AND THE EDGE OF THE THROUGH OPENING SHALL BE MIN ZERO IN. (CONTINUOUS POINT CONTACT) TO MAX 1-1/4 IN.
4. FILL, VOID OR CAVITY MATERIALS- CAULK - MIN THICKNESS OF 5/8 IN. AND 1-1/4 IN. OF CAULK OR PUTTY FOR 1 AND 2 HR RATED WALL ASSEMBLIES, RESPECTIVELY, APPLIED WITHIN ANNULUS BETWEEN PIPE COVERING AND PERIPHERY OF THE OPENING, FLUSH WITH BOTH SURFACES OF WALL ASSEMBLY. A MIN 1/2 IN. DIAM BEAD OF CAULK SHALL BE APPLIED TO THE PIPE COVERING/WALL INTERFACE AT THE POINT CONTACT LOCATION ON BOTH SIDES OF WALL. THE HOURLY F AND T RATINGS OF THE FIRESTOP SYSTEM ARE 1 HR WHEN INSTALLED IN 1 HR FIRE RATED WALL ASSEMBLIES. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS 2 HR WHEN INSTALLED IN 2 HR FIRE RATED WALL ASSEMBLIES. WHEN INSTALLED IN 2 HR FIRE RATED WALL ASSEMBLIES, T RATING IS 1 HR WHEN COPPER TUBE IS USED AND 1-1/2 HR WHEN STEEL PIPE IS USED.
5. PACKING MATERIAL - (OPTIONAL) - MINERAL WOOL OR FIBERGLASS INSULATION OR POLYETHYLENE BACKER ROD FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL.

14 INSULATED PIPE AND CONDUIT PENETRATION THROUGH CONCRETE FIRE RATED WALL
NTS

1



15 TYPICAL UNDERFLOOR DUCT INSTALLATION DETAIL
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KS. CORPORATE NO: E-325
EXPIRES 12/31/2020

Construction Documents

Valley Park Elementary School Addition

Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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JOB NO: 18027
DRAWN BY: Author
CHECKED BY: Checker
DATE: 11.13.2018

M400

MECHANICAL DETAILS

CARL J. HOLDEN

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CHILLER SCHEDULE (AIR-COOLED)

MARK	MANUFACTURER	MODEL	CAP (TONS)	MIN EFF (EER)	REFR TYPE	EVAPORATOR PASS	EVAPORATOR DESIGN GPM	EVAPORATOR EWT (°F)	EVAPORATOR LWT (°F)	EVAPORATOR MAX PD (FT)	CONDENSER AMB TEMP	CONDENSER MIN NO OF STAGES	CONDENSER CIRCUIT	INTEGRAL PUMP PUMP TYPE	INTEGRAL PUMP RPM	INTEGRAL PUMP HP	INTEGRAL PUMP FT HEAD	VOLTS	PH	DISC TYPE	STARTER TYPE	VFD (Y/N)	CIRCUIT 1 MCA	CIRCUIT 1 MOCP	CIRCUIT 2 MCA 2	CIRCUIT 2 MOCP 2	WEIGHT (LBS)	NOTES
ACC 1	DAIKIN	AGZ045E	41.2	9.66	R410A	2	76	58	44	10.0	105	4	2	SIMPLEX	1800	2.0	36.0	460	3	CB	VFD	Yes	51	60	48	60	4500	A-O

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. DISCONNECT SWITCH FURNISHED BY DIVISION 26 CONTRACTOR.
B. COORDINATE SIZE OF CONDUCTOR TERMINATION LUGS WITH CONDUCTOR SIZES SHOWN ON ELECTRICAL DRAWINGS.
C. EVAPORATOR BASED ON FOULING FACTOR OF 0.0001.
D. PROVIDE CONCRETE HOUSEKEEPING PAD PER SPECIFICATIONS.
E. CHILLER SHALL BE SELECTED FOR 30% PROPYLENE GLYCOL SOLUTION.
F. EQUIPMENT SIZED FOR 105° F AMBIENT TEMPERATURE.
G. PROVIDE FLOW OR DIFFERENTIAL PRESSURE SWITCH FOR FIELD INSTALLATION.
H. PROVIDE SHAFT GROUNDING SYSTEM ON MOTOR. REFER TO MOTOR SPECIFICATION FOR ADDITIONAL INFORMATION.
J. FURNISH CHILLER WITH COTTONWOOD FILTERS.
K. FURNISH CHILLER WITH FULL BASE AND EVAPORATOR LOUVERED PANELS TO SCREEN INTERNAL COMPONENTS.
L. PROVIDE SHUTOFF VALVES FOR EACH REFRIGERANT CIRCUIT.
M. PROVIDE PANEL WITH A MINIMUM SCCR OF 15kVA.
N. UNIT SHALL BE FURNISHED WITH COMPRESSOR BLANKETS FOR SOUND ATTENUATION.
O. PRIMARY PUMP INTEGRAL TO CHILLER PACKAGE. PUMP SHALL BE VARIABLE SPEED FOR BALANCING PURPOSES. PUMP SHALL BE POWERED FROM CHILLER CONNECTION.

AIR HANDLING UNIT SCHEDULE (CHILLED WATER COOLING, ELECTRIC HEATING)

MARK	MANUFACTURER	MODEL	UNIT TYPE	SUPPLY FAN FAN TYPE	SUPPLY FAN CFM	SUPPLY FAN ESP (IN)	SUPPLY FAN TSP (IN)	SUPPLY FAN BHP	SUPPLY FAN NOM HP	SUPPLY FAN VFD (Y/N)	SUPPLY FAN V/PH	COOLING COIL AIRFLOW (CFM)	COOLING COIL TH (MBH)	COOLING COIL SH (MBH)	COOLING COIL EAT (°F DB)	COOLING COIL EAT (°F WB)	COOLING COIL LAT (°F DB)	COOLING COIL LAT (°F WB)	COOLING COIL FLOW (GPM)	COOLING COIL EWT (°F)	COOLING COIL LWT (°F)	COOLING COIL MAX WPD (FT)	COOLING COIL MAX APD (IN)	COOLING COIL MAX VEL (FPM)	COOLING COIL ROWS/FPI	COOLING COIL NO. OF COILS	HEATING COIL AIRFLOW (CFM)	HEATING COIL MIN OUT (MBH)	HEATING COIL NOM (KW)	HEATING COIL EAT (°F DB)	HEATING COIL LAT (°F DB)	HEATING COIL MAX APD (IN)	HEATING COIL MAX VEL (FPM)	HEATING COIL MIN NO STAGES	MIN O/A CFM	ABS MIN O/A	FILTERS PRE-FILTERS MERV	FILTERS PRE-FILTERS SP LOSS	FILTERS FINAL FILTERS MERV	FILTERS FINAL FILTERS SP LOSS	DISC TYPE	STARTER TYPE	WEIGHT (LBS)	NOTES
AHU 1	DAIKIN	CAH019	VAV DISPLACEMENT	PLENUM	10800	1.0	2.0	5 @ 0.74	5.00	Yes	460/3	7780	412.5	274.7	87.0	70.0	53.1	52.9	66 GPM	44 °F	58 °F	15.00	1.0	500	6/12	1	5500	238.7	70.0	28.0	68.0	0.05	500	SCR	3120	2610	8	0.60	13	1.00	N/F	VFD	6050	A-T

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. DISCONNECT SWITCH FURNISHED BY DIVISION 26 CONTRACTOR.
B. VARIABLE FREQUENCY DRIVE FURNISHED BY DIVISION 23 CONTRACTOR.
C. PROVIDE SHAFT GROUNDING SYSTEM ON MOTOR. REFER TO MOTOR SPECIFICATION FOR ADDITIONAL INFORMATION.
D. SPECIFIED FAN ESP ACCOUNTS FOR DUCT LOSSES EXTERNAL TO UNIT.
E. SPECIFIED FAN TSP INCLUDES EXTERNAL DUCT AND INTERNAL FILTER, COIL, AND CASING LOSSES. FILTER LOSS IS AT A MAXIMUM OF 400 FPM FACE VELOCITY.
F. PROVIDE MOTOR HORSEPOWER TO OVERCOME INTERNAL UNIT STATIC PRESSURE DROP PLUS SPECIFIED EXTERNAL STATIC PRESSURE DROP. NOMINAL MOTOR HP SHALL BE NO LARGER THAN THE FIRST AVAILABLE NOMINAL MOTOR SIZE GREATER THAN THE REQUIRED BHP.
G. DIVISION 28 CONTRACTOR SHALL PROVIDE SMOKE DETECTORS IN RETURN AIR AND SUPPLY AIR DUCT(S).
H. UNIT SHALL BE A DRAW THRU CONFIGURATION WITH A BYPASS DAMPER.
J. PROVIDE CONCRETE HOUSEKEEPING PAD PER SPECIFICATIONS.
K. PROVIDE HEATING COIL WITH THERMAL OVERLOAD PROTECTION AND AIRFLOW PROVING SWITCH.
L. PROVIDE HEATER TO MEET OR EXCEED SCHEDULED MINIMUM MBH OUTPUT. NOMINAL KW IS BASED ON LISTED MANUFACTURER'S STANDARD PRODUCT. COORDINATE EQUIPMENT POWER SUPPLY WITH ELECTRICAL CONTRACTOR IF DIFFERENT FROM THAT SCHEDULED.
M. SELECT EQUIPMENT FOR ELEVATION OF 1000 FEET ABOVE SEA LEVEL.
N. ABS. MIN. O/A IS THE ABSOLUTE MINIMUM OUTSIDE AIR CFM USING VENTILATION RESET OR DEMAND CONTROL VENTILATION.
O. PROVIDE RETURN AIR DAMPER, RELIEF AIR DAMPER, BYPASS AIR DAMPER AND A SPLIT OUTSIDE AIR DAMPER SECTION. SIZE ONE OUTSIDE AIR SECTION FOR THE MIN O/A CFM. SIZE THE SECOND OUTSIDE AIR SECTION FOR ECONOMIZER OPERATION.
P. SIZE COOLING COIL AND CONTROL VALVE FOR 30% PROPYLENE GLYCOL CONCENTRATION.
Q. REFER TO MECHANICAL DETAIL SHEET M401 FOR ADDITIONAL UNIT CONFIGURATION AND DIMENSION REQUIREMENTS.
R. SELECT FAN SPEED AT NO GREATER THAN 90% MAX RPM.
S. PROVIDE MERV 8 PLEATED PREFILTERS AND MERV 13 FINAL FILTERS.
T. SHIPPING SPLITS FOR UNIT SHALL BE ABLE TO FIT THROUGH DOUBLE DOORS OF MECHANICAL ROOM.

PUMP SCHEDULE

MARK	SERVICE	MANUFACTURER	MODEL	MOUNTING	MAX FLOW/HEAD GPM	MAX FLOW/HEAD FTHD	MIN HP	NPSHA (FT)	RPM	VFD (Y/N)	V/PH	DISC TYPE	STARTER TYPE	NOTES
SCHWP 1	SECONDARY CHILLED WATER	GRUNDFOS	MPC-E 3CRE 45-1-1	VMS-INLINE	476	72.0	3 @ 7.5	13.1	2760	Yes	460/3	BY DIV. 26	VFD	A-L

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. PROVIDE PUMPS AS PACKAGED TRIPLEX SYSTEM, SPECIFIED FLOW AND HEAD IS FOR TOTAL PUMP PACKAGE.
B. 3 PUMPS ARE IN PACKAGED SYSTEM AND EACH WILL BE SIZED FOR 50% OF SYSTEM FLOW.
C. MOUNT PUMPS ON NEW CONCRETE HOUSEKEEPING PAD PER SPECIFICATIONS FOR NEW PUMP PACKAGE.
D. PUMPS, MOTORS, VFDS, AND CONTROLS TO BE FACTORY INSTALLED PACKAGE.
E. SIZE PUMPS FOR 30% PROPYLENE GLYCOL SOLUTION.
F. DISCONNECT SWITCH FURNISHED BY DIVISION 26 CONTRACTOR.
G. PUMP MOTOR SHALL BE NON-OVERLOADING THROUGHOUT THE FULL RANGE OF THE PUMP CURVE.
H. NPSHA IS THE NET POSITIVE SUCTION HEAD AVAILABLE TO THE PUMP. PUMP AT DESIGN CONDITIONS SHALL HAVE NPSH LESS THAN SPECIFIED VALUE.
J. CONNECTION FLANGES SHALL BE ON THE RIGHT SIDE OF THE SKID WHEN FACING FRONT OF SKID. THE CONTROLLER SHALL BE POSITIONED TO THE LEFT OF THE PUMPS.
K. INTERLOCK PUMPS WITH BMS HOWEVER PUMP CONTROLLER SHALL CONTROL PUMP SEQUENCING AND MODULATION FOR OPTIMAL EFFICIENCY USE.
L. PUMP HEADERS SHALL INCLUDE ISOLATION AND CHECK VALVES.

FAN SCHEDULE

MARK	SERVICE DESCRIPTION	MANUFACTURER	MOUNTING	MODEL	CFM	ESP (IN)	NOM HP	FAN RPM	DRIVE (BELT/DIRECT)	VFD (Y/N)	ELECTRICAL V/PH	ELECTRICAL DISC TYPE	ELECTRICAL STARTER TYPE	WEIGHT (LBS)	NOTES
EF 1	RESTROOM	GREENHECK	ROOF	G-80-D	350	0.30	0.05	1550	DIRECT	No	120/1	COMB	-	24	A-D
RF 1	BUILDING RELIEF	GREENHECK	ROOF	GB-300-VGD	9450	0.25	2.00	1725	BELT	Yes	208/3	BY DIV. 26	VFD	185	A-C, E, F

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NOTES:

A. PROVIDE STANDARD INSULATED ROOF CURB WITH MINIMUM HEIGHT OF 15 INCHES. PROVIDE SLOPED CURB IF NEEDED TO MATCH ROOF SLOPE.
B. PROVIDE BIRDSCREEN AND GRAVITY BACKDRAFT DAMPER.
C. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH.
D. PROVIDE WITH MANUFACTURER'S FAN SPEED CONTROLLER FOR BALANCING PURPOSES.
E. DIVISION 23 CONTRACTOR TO FURNISH VARIABLE FREQUENCY DRIVE.
F. DIVISION 26 CONTRACTOR TO PROVIDE DISCONNECT AT UNIT.

COMPUTER ROOM UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	REFR TYPE	EVAPORATOR SECTION CFM	EVAPORATOR SECTION TC (MBH)	EVAPORATOR SECTION EAT (°F DB)	EVAPORATOR SECTION (°F WB)	EVAPORATOR SECTION MCA	EVAPORATOR SECTION FLA	AMB. (°F)	CONDENSING UNIT V/PH	CONDENSING UNIT MCA	CONDENSING UNIT MOCP	NOTES
CRU 1	MITSUBISHI	PEA-A24/PUY-A24	R410A	670	21.5	78.0	60.0	2.6	2.1	105	208/1	18	25	A-D

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. CONTRACTOR SHALL VERIFY WITH EQUIPMENT SUPPLIER EXACT ROUTING AND SIZE OF INSULATED REFRIGERANT PIPING. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
B. DIVISION 26 CONTRACTOR TO PROVIDE DISCONNECT SWITCH FOR EVAPORATOR SECTION AND CONDENSING SECTION.
C. PROVIDE WITH WALL MOUNTED THERMOSTAT BY UNIT MANUFACTURER.
D. INDOOR UNIT SHALL RECIEVE POWER FROM THE OUTDOOR (ROOF MOUNTED) UNIT THROUGH FIELD WIRING.

VARIABLE FREQUENCY DRIVES (VFD'S)

MARK	SERVING EQUIPMENT	NUMBER OF MOTORS ON THE DRIVE	HP OF EACH MOTOR ON THE DRIVE	PULSE WIDTH MODULATED PULSE TYPE	ABB MODEL	VOLT/PHASE	ENCLOSURE	MOUNTING LOCATION	INTERNAL INPUT OVERCURRENT PROTECTION DEVICE	MINIMUM OUTPUT RATING (AMPS)	NOTES
VFD 1	RF 1	1	2.0	6-PULSE	ACH500	208/3	NEMA-1	ELEC ROOM	CIRCUIT BREAKER	100000.0	A-E

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GENERAL NOTES APPLICABLE TO ALL ITEMS:
1. DRIVE AMPS SHALL BE RATED PER NATIONAL ELECTRICAL CODE TABLE 430.250

SCHEDULE NOTES:
A. PROVIDE "EARLY BREAK" AUXILIARY CONTACTS IN MOTOR DISCONNECT THAT DEACTIVATES THE VFD WHEN MOTOR DISCONNECT SWITCH IS OPEN.
B. PROVIDE SURGE SUPPRESSION ON THE INPUT OF THE DRIVE
C. PROVIDE ANTI-SINGLE PHASING PROTECTION.
D. EQUIPMENT SIZED FOR 95°F AMBIENT TEMPERATURE.
E. INTERLOCK WITH SMOKE DETECTOR TO SHUT DOWN FAN ON ALARM.

1

UNDERFLOOR FAN-POWERED BOX SCHEDULE (ELECTRIC HEAT)

MARK	MANUFACTURER	MODEL	SUPPLY FAN DESIGN CFM	SUPPLY FAN MIN CFM	SUPPLY FAN ESP (IN)	SUPPLY FAN NOM HP	HEATING COIL NOM (KW)	HEATING COIL MIN NO STAGES	ELECTRICAL V/PH	ELECTRICAL FLA	ELECTRICAL DISC TYPE	NOTES
UFPB 1	PRICE	FDBU5000	150	50	0.10	0.33	1.0	SCR	120/1	2.9	FACT. MOUNTED	A-K

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED.
THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. NO FILTERS REQUIRED.
B. PROVIDE WITH BACK INLET CONNECTION.
C. PROVIDE WITH FRONT OUTLET CONNECTION.
D. PROVIDE FACTORY MOUNTED DISCONNECT INSTALLED ON SERVICE SIDE OF UNIT.
E. PROVIDE SINGLE POINT POWER CONNECTION.
F. SPECIFIED FAN ESP ACCOUNTS FOR DUCT LOSSES EXTERNAL TO UNIT.
G. VERIFY MINIMUM AIRFLOW IS MAINTAINED ACROSS ELECTRIC HEATING COILS WHEN BALANCING MINIMUM CFM.
H. PROVIDE WITH SPRING VIBRATION ISOLATION WHEN MOUNTING.
J. PROVIDE HEATER TO MEET OR EXCEED SCHEDULED MINIMUM MBH OUTPUT. NOMINAL KW IS BASED ON LISTED MANUFACTURER'S STANDARD PRODUCT. COORDINATE EQUIPMENT POWER SUPPLY WITH ELECTRICAL CONTRACTOR IF DIFFERENT FROM THAT SCHEDULED.
K. PROVIDE WITH PRICE UNDERFLOOR CONTROLLER TO COMMUNICATE WITH THERMOSTAT, BAS SYSTEM, AND TO CONTROL SEQUENCING PER SEQUENCE OF OPERATIONS.

LOUVER SCHEDULE

MARK	SERVICE	MANUFACTURER	MODEL	WIDTH (IN)	LENGTH (IN)	CFM	MIN FREE AREA (SF)	MAX VEL (FPM)	MAX APD (IN W.C.)	NOTES
LV 1	OUTDOOR AIR	GREENHECK	ESD-635	96"	36"	10800	13.35	810	0.1	A-D

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. PROVIDE 1/2" MESH ALUMINUM BIRD SCREEN.
B. PROVIDE ANODIZED FINISH. COLOR AS SELECTED BY ARCHITECT.
C. FRAME TYPE SHALL MATCH WALL CONSTRUCTION, COORDINATE WITH ARCHITECT.
D. PROVIDE WITH INTEGRAL 24 V MOTOR OPERATED LOW-LEAKAGE DAMPER.

BASEBOARD HEATER SCHEDULE (ELECTRIC)

MARK	MANUFACTURER	MODEL	LENGTH (IN)	MIN OUTPUT (MBH)	INPUT (KW)	MOUNTING TYPE	VOLTS	PH	MCA	DISC TYPE	NOTES
BH 1	INDEECO	914U01200C-2400	96"	3.5	1.20	WALL	208	1	5.8	BY DIV. 26	A-E
BH 2	INDEECO	914U01200C-2400	96"	3.5	1.20	WALL	208	1	5.8	BY DIV. 26	A-E
BH 3	INDEECO	914U01200C-2400	96"	3.5	1.20	WALL	208	1	5.8	BY DIV. 26	A-E
BH 4	INDEECO	914U01200C-2400	96"	3.5	1.20	WALL	208	1	5.8	BY DIV. 26	A-E
BH 5	INDEECO	914U00600C-1800	72"	1.5	0.60	WALL	208	1	2.9	BY DIV. 26	A-E
BH 6	INDEECO	914U01200C-2400	96"	3.5	1.20	WALL	208	1	5.8	BY DIV. 26	A-E
BH 7	INDEECO	914U01400C	96"	4.8	1.40	WALL	208	1	6.7	BY DIV. 26	A-C, E
BH 8	INDEECO	914U00400C-1200	48"	1.3	0.40	WALL	208	1	1.9	BY DIV. 26	A-C, E
BH 9	INDEECO	914U00400C-1200	48"	1.3	0.40	WALL	208	1	1.9	BY DIV. 26	A-C, E
BH 10	INDEECO	914U00750C-1500	60"	2.2	0.75	WALL	208	1	3.6	BY DIV. 26	A-E
BH 11	INDEECO	914U00750C-1500	60"	2.2	0.75	WALL	208	1	3.6	BY DIV. 26	A-E
BH 12	INDEECO	914U00750C-1500	60"	2.2	0.75	WALL	208	1	3.6	BY DIV. 26	A-E
BH 13	INDEECO	914U00750C-1500	60"	2.2	0.75	WALL	208	1	3.6	BY DIV. 26	A-E
BH 14	INDEECO	914U00400C-1200	48"	1.3	0.40	WALL	208	1	1.9	BY DIV. 26	A-C, E
BH 15	INDEECO	914U00400C-1200	48"	1.3	0.40	WALL	208	1	1.9	BY DIV. 26	A-C, E
BH 16	INDEECO	914U01400C	96"	4.6	1.40	WALL	208	1	6.7	BY DIV. 26	A-C, E

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NOTES:

A. PROVIDE NECESSARY MOUNTING BRACKETS AND ACCESSORIES FOR UNIT TO BE WALL MOUNTED AT BOTTOM OF WINDOW SILL.
B. PROVIDE DIGITAL, WHITE FINISH, LINE-VOLTAGE THERMOSTAT FOR EACH ROOM CIRCUIT. REFER TO PLANS FOR MOUNTING LOCATIONS.
C. ENCLOSURE SHALL BE STEEL WITH BAKED ENAMEL FINISH (COLOR BY ARCHITECT).
D. PROVIDE SPLICE/COVER PLATES BETWEEN UNITS SO THEY APPEAR AS A SINGLE UNIT.
E. ALL SIDES OF HEATER SHALL HAVE A SMOOTH PAINTED FINISH.

1

GRILLE, REGISTER AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	SERVICE	MODEL	FACE TYPE	MOUNTING LOCATION	FACE SIZE (IN)	MAX NC	MAX PRESS DROP (IN W.C.)	NOTES
DD 1	PRICE	SUPPLY	MFD-DP-DBV	ROUND DISPLACEMENT	FLOOR	10"Ø	25	0.08	B, H, J, M
DD 2	PRICE	SUPPLY	MFD-DP-B	ROUND DISPLACEMENT	FLOOR	10"Ø	25	0.08	B, H, M, N
EG 1	PRICE	EXHAUST	80	EGGCRATE	CEILING	12"x12"	25	0.08	B, C, F, G, H, K
EG 2	PRICE	EXHAUST	530	LOUVERED	WALL	REFER TO PLANS	25	0.08	B, D, F, G, H, L
RG 1	PRICE	RETURN	80	EGGCRATE	CEILING	24"x24"	25	0.05	B, C, F, G, H
RG 2	PRICE	RETURN	80	EGGCRATE	CEILING	24"x12"	25	0.05	B, C, F, G, H
RG 3	PRICE	RETURN	530	LOUVERED	WALL	REFER TO PLANS	25	0.05	B, D, F, G, H, L
SD 1	PRICE	SUPPLY	SCD	4-WAY	CEILING	24"x24"	25	0.08	A, B, C, F, G

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NOTES:

A. 4-WAY THROW PATTERN UNLESS OTHERWISE INDICATED BY FLOW ARROWS ON DRAWINGS.
B. NECK SIZE SHOWN ON DRAWINGS. PROVIDE BRANCH DUCT TO MATCH NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
C. BAKED ENAMEL FINISH, WHITE TO MATCH CEILING COLOR.
D. FRONT BLADES PARALLEL TO LONG DIMENSION.
E. DOUBLE DEFLECTION BARS SHALL BE ADJUSTABLE.
F. FRAME TYPE TO MATCH CEILING/WALL CONSTRUCTION, COORDINATE WITH ARCHITECTURAL REFLECTED CEILING/WALL PLAN.
G. PROVIDE DIFFUSERS, LINEAR SLOTS, AND GRILLES WITH NO EXPOSED MOUNTING SCREWS.
H. PAINT ALL INTERIOR SURFACES SLOTS, GRILLES AND PLENUMS FLAT BLACK.
J. PROVIDE DBV MODULATING BASKETS FOR ALL DIFFUSERS. PROVIDE UNDERFLOOR CONTROLLERS AND DAISY CHAIN DBV BASKETS TO THEIR ASSOCIATED ROOM THERMOSTAT. REFER TO M201A FOR THERMOSTAT ZONES. PROVIDE ZIP CLIP MOUNTING OR EQUIVALENT FOR EACH DIFFUSER.
K. CONTRACTOR SHALL PROVIDE REMOTE CABLE-OPERATED VOLUME DAMPER BY METROPOLITAN AIR TECHNOLOGIES MODEL RT-250 WITH EXTERNAL WORM GEAR OPERATOR OR EQUIVALENT YOUNG REGULATOR BUTTERFLY DAMPER WITH 270-275 CONTROLLER. OPERATOR SHALL HAVE A SQUARE DRIVE FOR 1/4" NUT DRIVER. DAMPER ASSEMBLY SHALL INCLUDE GALVANIZED STEEL DUCT WITH ROLLED BEAD STIFFENERS, REINFORCED BLADE, SELF LUBRICATING BEARING AND WORM GEAR MOUNTING PLATE. DAMPER SHALL BE INSTALLED IN BRANCH DUCT NOT INLET OF PLENUM DIFFUSER.
L. BAKED ENAMEL FINISH, COLOR TO MATCH WALL COLOR. CONFIRM COLOR WITH ARCHITECT.
M. DISPLACEMENT DIFFUSER SHALL BE ALUMINUM CONSTRUCTION.
N. PROVIDE BASIC BASKET WITHOUT DAMPER FOR DIFFUSER.

CABINET UNIT HEATER SCHEDULE (ELECTRIC)

MARK	MANUFACTURER	MODEL	MIN OUT (MBH)	NOM (KW)	CFM	MOUNTING TYPE	V/PH	MCA	DISC TYPE	NOTES
CUH 1	QMARK	AWH3180F	6.1	1.8	100	RECESSED	120/1	15	FACT. MOUNTED	A-F
CUH 2	QMARK	AWH3180F	6.1	1.8	100	RECESSED	120/1	15	FACT. MOUNTED	A-F

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NOTES:

A. MOUNT 2 FEET ABOVE FINISHED FLOOR WITHOUT OBSTRUCTING AIRFLOW.
B. PROVIDE WITH UNIT MOUNTED THERMOSTAT.
C. PROVIDE MANUAL SUMMER/WINTER CHANGE-OVER SWITCH
D. PROVIDE NECESSARY MOUNTING BRACKET AND ACCESSORIES FOR MOUNTING SPECIFIED.
E. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH INSTALLED BEHIND FACEPLATE.
F. COORDINATE FACE PLATE COLOR SELECTION WITH ARCHITECT.

UNIT HEATER SCHEDULE (ELECTRIC)

MARK	AREA SERVED	MANUFACTURER	MODEL	MIN OUT (MBH)	NOM (KW)	CFM	MOTOR HP	THROW (FT)	V/PH	DISC TYPE	NOTES
UH 1	MECHANICAL	QMARK	MUH03-81	10.2	3.0	350	0.01	12	208/1	COMB	A-E

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. MOUNT 6 FEET ABOVE FINISHED FLOOR WITHOUT OBSTRUCTING AIRFLOW.
B. PROVIDE WITH UNIT MOUNTED THERMOSTAT.
C. PROVIDE MANUAL SUMMER/WINTER CHANGE-OVER SWITCH
D. PROVIDE NECESSARY MOUNTING BRACKET AND ACCESSORIES FOR VERTICAL MOUNTING.
E. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH INSTALLED ON SERVICE SIDE OF UNIT.

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Construction Documents

Valley Park Elementary School Addition
Blue Valley School District

12301 Lamar Ave.
Leawood, KS 66209

Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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DRAWN BY: JWP
CHECKED BY: JPC
DATE: 11.13.2018

M500

MECHANICAL SCHEDULES

CARL J. HOLDEN

Please consider the environment before printing this.

MECHANICAL CONTROLS SYMBOLS

NOTE: THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ABBREVIATIONS, ETC. ARE NECESSARILY USED ON THE DRAWINGS.

CONTROLS SYMBOLS AND NOMENCLATURE

- FLUE DAMPER (BOILERS)
- BOILER (CONTROL PANEL)
- COOLING TOWER
- CONDENSING UNIT
- FLUID COOLER
- WATER-COOLED CHILLER (CONDENSER, EVAPORATOR, CONTROL PANEL)
- AIR-COOLED CHILLER (AIR-COOLED)
- GENERIC HEAT EXCHANGER (HX)
- SHELL AND TUBE HEAT EXCHANGER (HEAT EXCHANGER)
- BASIN HEATER (BHTR)
- GROUND HEAT EXCHANGER
- PUMP
- FAN
- HEAT RECOVERY WHEEL

- HOT GAS REHEAT COIL (H/G)
- COOLING COIL (C/C)
- FURNACE
- HEATING COIL (H/C)
- DAMPER - GENERIC BLADE TYPE
- DAMPER - OPPOSED BLADE TYPE
- DAMPER - PARALLEL BLADE TYPE
- LOW LIMIT TEMPERATURE SENSOR
- AIRFLOW STATION
- AIRFLOW STATION INTEGRAL TO FAN (AFS)
- HUMIDIFIER
- AIR FILTER
- 3-WAY CONTROL VALVE
- 2-WAY CONTROL VALVE
- AIR BYPASS DAMPER
- DX — DIRECT EXPANSION COOLING UNIT CONTROLLER
- GAS — FURNACE BURNER CONTROLLER
- SCR — SILICON-CONTROLLED RECTIFIER ELECTRIC HEATER CONTROL (MODULATING)
- ELEC — ELECTRIC HEATER CONTROLLER (ON/OFF)
- VFD — VARIABLE FREQUENCY DRIVE
- STARTER — MOTOR STARTER
- SPC — STATIC PRESSURE CONTROLLER
- LTC — LOW LIMIT TEMPERATURE CONTROLLER
- EMERGENCY PUSH BUTTON
- SD — SMOKE DETECTOR (SD=SUPPLY / RD=RETURN)

- (#) RISER DESIGNATION
- (FD) FIRE DAMPER
- (FSD) FIRE SMOKE DAMPER
- (SD) SMOKE DAMPER
- (VD) VOLUME DAMPER
- (MD) MOTORIZED DAMPER
- (BD) BACKDRAFT DAMPER
- (H) HUMIDISTAT
- (T) THERMOSTAT

- BTU — BTU METER
- CO — CARBON MONOXIDE SENSOR
- CO2 — CARBON DIOXIDE SENSOR
- CP — CONTROL PANEL
- CT — CIRCUIT TRANSDUCER
- DP — DIFFERENTIAL PRESSURE SENSOR
- EM — ELECTRIC METER
- FM — FLOW METER; FUEL METER
- FS — FLOW SWITCH
- HS — HUMIDITY SENSOR
- P — PRESSURE SENSOR
- PS — PULL STATION
- R — REFRIGERANT LEAK SENSOR
- S — SENSOR - GENERIC
- SP — STATIC PRESSURE SENSOR
- SW — SWITCH
- TS — TEMPERATURE SENSOR
- WM — WATER METER

<>	NOT EQUAL TO
AI	ANALOG INPUT (MODULATING)
AO	ANALOG OUTPUT (MODULATING)
AV	ANALOG VIRTUAL
BI	BINARY INPUT (ON/OFF, OPEN/CLOSED, ETC)
BO	BINARY OUTPUT (ON/OFF, OPEN/CLOSED, ETC)
BV	BINARY VIRTUAL
BAS	BUILDING AUTOMATION SYSTEM
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CMD	COMMAND
COM	COMMUNICATION LINK
CP	CONTROL PANEL
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
DCW	DOMESTIC COLD WATER
EOA	ECONOMIZER OUTSIDE AIR
EQ	EQUALIZER
E/M	EQUIPMENT MANUFACTURER
FIP	FAIL IN POSITION
G	NATURAL GAS
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
HPWR	HEAT PUMP WATER SUPPLY
HPWS	HEAT PUMP WATER RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LPC	LOW PRESSURE STEAM CONDENSATE
MIN	MINIMUM
MIN	MINUTES
MOA	MINIMUM OUTSIDE AIR
NC	NORMALLY CLOSED
NIA	NOT IN AUTO (IN HAND)
NO	NORMALLY OPEN
PID	PROPORTIONAL INTEGRAL DERIVATIVE
RA	RETURN AIR
REA	RELIEF/EXHAUST AIR
RH	RELATIVE HUMIDITY
SA	SUPPLY AIR
SCHED	AS SCHEDULED ON DRAWINGS
SPEC	SPECIFIED
SPT	SETPOINT
TBD	TO BE DETERMINED
///	POWER WIRING
=	CONTROL WIRING
	ETHERNET LAN WIRING
	BAS COMMUNICATION WIRING

PROJECT DESIGN CONDITIONS

CLIMATE CONDITONS

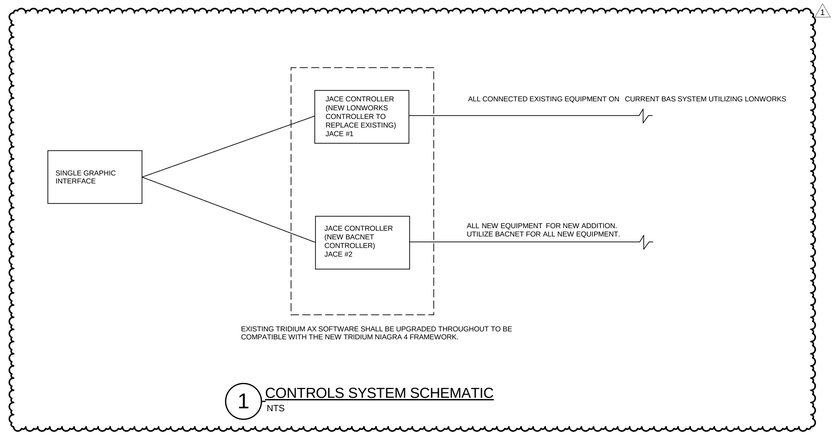
WEATHER STATION:		JOHNSON CO EXECUTIVE, KS					
CLIMATE ZONE:		4A					
HEATING (DB):	99.6%	4.9	°F				
DESIGN HEATING CONDITIONS (DB):		4.9	°F				
HUMIDIFICATION (DP/ HR/ MCDB):	99.6%	-6	°F/	4.1	gr/lb	8.2	°F
COOLING (DB/MCWB):	0.4%	96.8	°F/	76.4	°F/		
DESIGN COOLING CONDITIONS (DB/ MCWB):		96.8	°F/	76.4	°F/		
DEHUMIDIFICATION (DP/ HR/ MCDB):	0.4%	74.8	°F/	134.0	gr/lb	85.7	°F

BUILDING OPERATING HOURS:

MONDAY - FRIDAY	TBD BY OWNER
SATURDAY	TBD BY OWNER
SUNDAY	TBD BY OWNER
HOLIDAY	TBD BY OWNER

SPACE / UNIT DESCRIPTION	SET POINTS											NOTES
	COOLING / DE-HUMIDIFICATION				HEATING		HUMIDIFICATION		ZONE VENTILATION RESET			
	OCC °F	UNOCC °F	MAX RH %	MIN RH %	OCC °F	UNOCC °F	MIN RH %	MAX RH %	CONTROL METHOD	BASE PPM	MAXIMUM PPM	
OFFICE/CONFERENCE ROOMS	75	78	50%	NA	70	65	NA	NA	NA	NA	NA	B,C
STORAGE	78	78	50%	NA	68	65	NA	NA	NA	NA	NA	B,C
GYM	75	78	50%	NA	72	65	NA	NA	OCC	400	900	A-C
MECH/ELEC ROOM	85	85	NA	NA	65	65	NA	NA	NA	NA	NA	B,C
DATA ROOM	68	68	50%	NA	68	65	NA	50	NA	NA	NA	B,C
MEDIA CENTER	75	78	50%	NA	70	65	NA	NA	NA	NA	NA	B,C
CLASSROOMS	75	78	50%	NA	70	65	NA	NA	NA	NA	NA	B,C
COMMONS	75	78	50%	NA	70	65	NA	NA	OCC	400	900	A-C
CORRIDORS	75	78	50%	NA	70	65	NA	NA	NA	NA	NA	B,C

NOTES:
A. ZONE LEVEL VENTILATION RESET / DEMAND CONTROL VENTILATION (DCV) CONTROL METHOD: CARBON DIOXIDE SENSOR (CO2).
B. ZONE LEVEL SET POINT CONDITIONS SHALL BE AS SCHEDULED UNLESS OTHERWISE SCHEDULED OR NOTED ON THE DRAWINGS FOR ROOM SPECIFIC SPACE CONDITIONS.
C. ZONE LEVEL OCCUPANCY HOUR SCHEDULE SHALL BE PER BUILDING OPERATING HOURS UNLESS OTHERWISE SCHEDULED.



1 CONTROLS SYSTEM SCHEMATIC
NTS

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JOB NO: 18027
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CHECKED BY: Checker
DATE: 11.13.2018

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MECHANICAL CONTROLS

CARL J. HOLDEN
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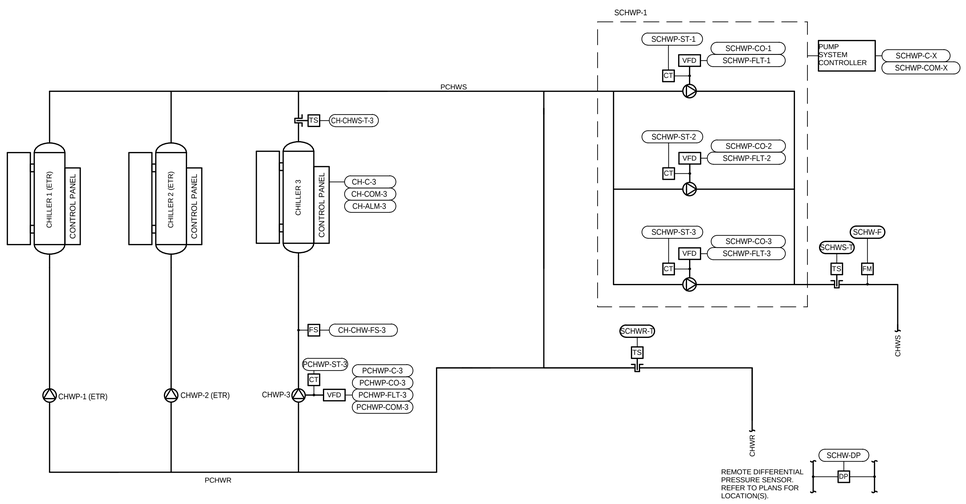

POINTS LIST - CHILLED WATER PLANT

POINT ID	DESCRIPTION	POINT TYPE	DEFAULT SETPOINT	SETPOINT RESET RANGE	FAIL POSITION	STATUS ALARM	ALARM RANGE	NOTES
CHILLER SENSORS AND VALVES								
CH-CHW-FS-3	CHILLER CHILLED WATER FLOW SWITCH	BI						D
CH-CHWS-T-3	CHILLER CHILLED WATER SUPPLY TEMPERATURE	AI	SCHED					A, J, P
CHILLER CONTROL PANEL								
CH-ALM-3	CHILLER ALARM	BI				X	COMMON ALARM	
CH-COM-3	CHILLER COMMUNICATION	COM						
CH-C-3	CHILLER ENABLE/DISABLE COMMAND	BO						
PRIMARY CHILLED WATER PUMP								
PCHWP-C-3	PRIMARY PUMP COMMAND	BO						
PCHWP-CO-3	PRIMARY PUMP SPEED OUTPUT	AO	TBD	MIN. - 60 Hz		X	PCHWP-CO < MINIMUM	J, K
PCHWP-COM-3	PRIMARY PUMP VFD COMMUNICATION	COM						
PCHWP-FLT-3	PRIMARY PUMP VFD FAULT	BI				X	COMMON ALARM	
PCHWP-ST-3	PRIMARY PUMP STATUS	BI				X	PCHWP-ST <> PCHWP-C	
SECONDARY CHILLED WATER LOOP								
SCHWR-T	SECONDARY CHILLED WATER RETURN TEMPERATURE	AI						B
SCHWS-T	SECONDARY CHILLED WATER SUPPLY TEMPERATURE	AI						B
SCHW-F	SECONDARY CHILLED WATER FLOW	AI						B
SCHW-DP	SECONDARY CHILLED WATER DIFFERENTIAL PRESSURE	AI	TBD	TBD		X	SCHW-DP +/- 5 PSIG OF SPT	A, J, K
SECONDARY CHILLED WATER PUMP (TYPICAL ALL SCHWP)								
SCHWP-C-X	SECONDARY PUMP COMMAND	BO						
SCHWP-CO-X	SECONDARY PUMP SPEED OUTPUT	AO	TBD	MIN. - 60 Hz		X	SCHWP-CO < MINIMUM	J, K
SCHWP-COM-X	SECONDARY PUMP VFD COMMUNICATION	COM						
SCHWP-FLT-X	SECONDARY PUMP VFD FAULT	BI				X	COMMON ALARM	
SCHWP-ST-X	SECONDARY PUMP STATUS	BI				X	SCHWP-ST <> SCHWP-C	

ALL POINTS SHOWN SHALL BE PROVIDED BY BAS CONTRACTOR UNLESS NOTED OTHERWISE.

NOTES:
A. BAS CONTRACTOR SHALL PROVIDE DEVICE.
B. BAS CONTRACTOR SHALL REPLACE EXISTING DEVICE IN SYSTEM WITH NEW DEVICE.
D. DEVICE FURNISHED WITH CHILLER.
J. POINT SHALL BE ADJUSTABLE.
K. DETERMINE SETPOINT IN FIELD.
P. INCLUDE POINT IN DAILY LOG REPORT FOR CHILLER AS RECOMMENDED BY ASHRAE STANDARD 147.

CHILLER PLANT LOAD STAGING CONTROL MATRIX

PLANT LOAD STAGE	MAXIMUM STAGE CAPACITY (TONS)	STAGE LOAD RANGE CHW-LOAD (TONS) (NOTE 1)		CHILLER STATUS		
		LOW	HIGH	ACC-1	ACC-2	ACC-3
0	0	0	0	OFF	OFF	OFF
1	41	15	41	OFF	OFF	ON
2	153	33	153	ON (LEAD)	OFF (LAG)	ON
3	224	122	224	ON	ON	OFF
4	265	180	265	ON	ON	ON

NOTES:
(1): CHILLER STAGE UP LOGIC: WHEN THE CHILLER PLANT REACHES STAGE MAXIMUM LOAD.
CHILLER STAGE DOWN LOGIC: WHEN THE CHILLER PLANT REACHES STAGE MINIMUM LOAD.
CHW-LOAD = 500 x (SCHW-F) x (SCHWS-T - SCHWR-T) / 12000

SEQUENCE OF OPERATIONS
CENTRAL CHILLED WATER PLANT

This sequence of operations is organized into the following main categories: operating modes, control setpoint resets, safeties, overrides and interlocks, and component control loops. The operating modes describe the criteria that either enable or disable the various modes of operation. If a mode of operation is not listed within a component control loop section then that mode of operation has no direct influence on the operation of the component. The control setpoint reset section describes the logic and reference variables that will be used to reset control setpoints to a new value within its reset range. The safeties, overrides, and interlocks section outlines the hardwired interlocks that will be required to meet life safety requirements. Safeties and interlocks take precedence over all other control strategies outlined in this document. The control responses of each component for the various modes of operation are described in the component control loop sections.

The sequence of operations, the points list and control diagrams shall be used to provide a complete description of the control philosophy for the controlled equipment. Individual setpoint values, reset ranges, and alarm action levels are listed in the points list. Components and control sensor locations are graphically depicted on the control diagram. The controls contractor shall be responsible for coordinating any necessary time delay setpoints to establish stable system operation.

GENERAL DESCRIPTION
The chilled water plant described by this sequence of operations consist(s) of two existing chillers each with an existing dedicated constant flow primary pump, a new chiller with an integral constant flow primary pump and three new variable speed secondary pumps .

BAS Control Requirements
The building automation system (BAS) shall provide a remote enable signal; remote setpoint adjustments; and visibility of the local factory chiller control operation at the operator's workstation as defined in the chilled water plant points list. The communication protocol shall be coordinated with the provided chiller. Reference the points list and control loops section of this sequence for scope of work coordination between the contractor and equipment manufacturer for valves, sensors, and equipment. All existing equipment shall interface with new equipment on new BAS interface. Existing equipment will remain LonTalk while all new systems and controllers shall be provided with 100% open BACnet protocol. Provide Jaces and BACnet native controllers to implement control sequences described.

Factory Chiller Control Requirements
The factory chiller control panel shall be responsible for controlling the chiller subject to the associated equipment related safeties and interlocks to maintain the chiller leaving water temperature setpoint. The chiller control panel shall control the associated chilled water (CH-CHW-CV).

OPERATING MODES

Record existing modes of operation for existing chillers and pumps and submit modes of operation to engineer for verification.
Chiller 3 shall be incorporated into system's existing operating modes upon engineer verification.
SCHWP 1-3 shall be incorporated into existing operating modes of the system.

CHILLED WATER PLANT DISABLED MODE:
The chilled water plant shall be in disabled mode when
There is no call from the enable modes as defined below;
Or- when the operator has manually disabled the chilled water plant at the operator's workstation.

CHILLED WATER PLANT ENABLED MODE:
The chilled water plant shall be enabled when any of the following enable methods is employed and the conditions are satisfied. The automatic enable mode shall be the basis of design enable mode.

Automatic Enable Mode: The chilled water plant shall be enabled mode when there is a call for chilled water among active cooling coil valves. BAS shall be capable of excluding valves from the analysis subject to a feedback signal from the valve.
A call for cooling is generated by the BAS when any two active cooling coil valve is at least 15% open for greater than 10 minutes;
Or- any one cooling coil valve is at least 80% open for 5 minutes.

Manual Enable Mode Option: The chilled water plant is in manual enable mode when the operator manually places the plant in enable mode at the operator work station.

Scheduled Start Mode Option: In the manual start mode, the system shall be manually enabled by the building operator or by time of day schedule.

PUMP FAILURE MODE:
A pump shall be in failure mode when:
The pump is given a start signal;
And- The pump status indicates it is off.

CONTROL SETPOINT RESETS
Record existing control setpoint resets for existing chillers and pumps and submit to engineer for verification.
Chiller 3 shall be incorporated into system's existing setpoint resets.
SCHWP 1-3 shall be incorporated into existing setpoint resets of the system.

SAFETIES, OVERRIDES AND INTERLOCKS
CHILLED WATER PUMP(S) INTERLOCK:
Pump(s) that are dedicated to a chiller shall start subject to a start signal from the chiller control panel through a hardwired interlock.

CHILLER PROOF OF FLOW INTERLOCK:
Chiller(s) shall start upon proof of flow subject to a flow switch wired to the local chiller control panel.

CONTROL LOOPS
STAGED PRIMARY PUMP CONTROL (PUMP INTEGRAL TO CHILLER)
The pump(s) shall be interlocked with the chiller operation.
When in chilled water plant disabled mode:
The pump shall be off.
When in chilled water plant enabled mode:
The pump shall be on or off as described in the Chiller Plant Load Staging Control Matrix – Staged Primary Pumping.

VARIABLE SECONDARY PUMP CONTROL (SCHWP-1 – SCHWP-3)
The pump(s) shall be enabled by the BAS and controlled by the pump skid controller.
When in chilled water plant disabled mode:
The pump shall be off.
When in chilled water plant enabled mode:
Sequences below are governed by the pumping skid onboard controller. BAS contractor shall integrate the pump controller with the existing BAS to provide full visibility of all points connected to the pump controller back at the BAS front end. Provide capability to communicate hydronic loop differential pressure setpoint to pump skid controller.
The pumps shall energize subject to a lead/lag sequence. Sequence shall be based on equal run time.
A pump that is energized shall start on low speed and ramp up to maintain the chilled water differential pressure set point as measured by the existing differential pressure sensor(s) (SCHW-DP-X (ETR)). Reset differential setpoint shall be determined during system startup. Multiple operating pumps shall ramp together to meet setpoint.
Optimized pump staging algorithm: Pumps shall energize on and off based on the optimum combination of primary pumps to minimize energy use.
When staging on a lag pump:
1. Ramp the operating pumps down to minimum speed.
2. Turn the lag pump on.
3. Ramp the operating pumps together to meet setpoint.
When staging off a lag pump:
1. Ramp the operating pumps down to minimum speed.
2. Turn the lag pump off.
3. Ramp the remaining operating pumps together to meet setpoint.
When in pump failure mode:
The next lag pump shall be energized and operate as in chilled water plant enabled mode.

CHILLER CONTROL (CH-3)
The chiller shall be controlled by the chiller manufacturer control panel. The chiller shall be subject to manufacturer programmed safeties, overrides, and interlocks.
When in chilled water plant disabled mode:
The chiller shall be off.
When in chilled water plant enabled mode:
The chiller(s) shall be on or off as described in the Chiller Plant Load Staging Control Matrix – Staged Primary Pumping.
Chillers shall turn on subject to initial factory start up sequences.
The interlocks associated with the Plant Load Stage shall have proven the associated equipment is on in the following order:
- The chilled water pump is on;
- The chiller has proven flow (CH-CHW-FS)
Soft Start Sequence: When the plant is off for an extended time period and the chilled water loop temperature has drifted out of range, a soft start sequence shall be initiated to limit the quantity of chillers operating to cool the loop back to setpoint and prevent spiking electrical demand.
The soft start sequence shall be enabled when the primary chilled water return temperature (PCHWR-T) is greater than the primary chilled water supply temperature setpoint (PCHWS-T) plus the chiller soft start temperature dead band (CH-SFT-ST-T-DB). When a chiller starts, as long as the chilled water return temperature is decreasing greater than 0.5 F (adj.) per minute, no additional chillers shall be added. If the chilled water return temperature does not drop at this rate, the next chiller plant load stage shall energize.
When the primary chilled water return temperature is within the primary chilled water return temperature setpoint plus 2 F (adj.), the chillers shall exit the soft start sequence and shall be subject to the Chiller Plant Load Staging Control Matrix.
Chiller Operation: A chiller that is on shall modulate its cooling capacity subject to the factory chiller controller to maintain the chilled water supply temperature setpoint (CH-CHWS-T-X).
The two existing equally sized chillers shall operate subject to a lead/lag sequence. Sequence shall be based on equal run time.
When in chiller failure mode:
The failed chiller shall be off; the associated chiller stage is locked out of the staging sequence and an alarm is generated.
Enable the next lag chiller.
When in chiller manual start mode:
The chiller shall turn on; the associated chiller stage is locked out of the staging sequence and an alarm is generated at the operator workstation.

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EXPIRES 12/31/2020

Construction Documents

Valley Park Elementary School Addition
Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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M601

MECHANICAL CONTROLS

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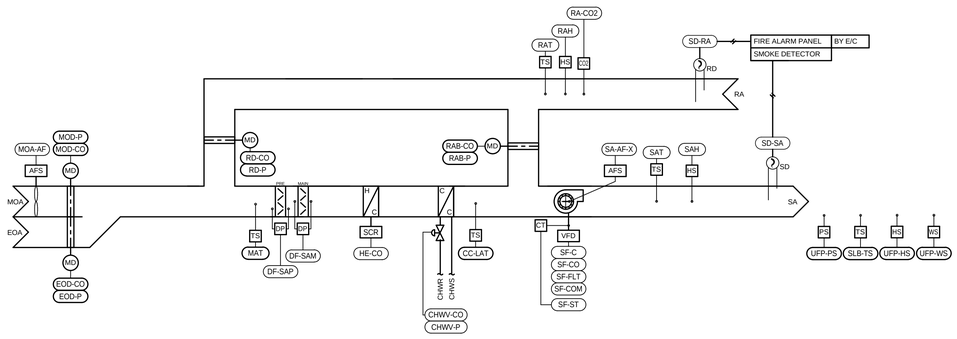

1 AIR HANDLER 1 CONTROL SCHEMATIC DIAGRAM
NTS

POINTS LIST - AIR HANDLING UNIT

POINT ID	DESCRIPTION	POINT TYPE	DEFAULT SET POINT	SET POINT RESET RANGE	FAIL POSITION	STATUS ALARM	ALARM RANGE	NOTES
GLOBAL VALUES								
USD	AIR HANDLING UNIT - UNIT START DELAY	AV	10 MIN					D
AIR SENSING								
SAT	SUPPLY AIR TEMPERATURE	AI	65 F	65 - 68 F		X	50 F > SAT > 100 F	D
SAH	SUPPLY AIR HUMIDITY	AI				X	18 RH > SAH > 90 RH	
RAT	RETURN AIR TEMPERATURE	AI						
RAH	RETURN AIR HUMIDITY	AI						
RA-CO2	RETURN AIR CO2 LEVEL	AI	1000 PPM			X	RA-CO2 > SPT	
MAT	MIXED AIR TEMPERATURE	AI	55 F	55 - 68 F CLG				D
CC-LAT	COOLING COIL LEAVING AIR TEMPERATURE	AI	55 F	(UFP-DP) - 2 F		X	40 F > CC-LAT	D
SA-AF	SUPPLY AIRFLOW QUANTITY MAX./MIN. (CFM)	AI	SCHED					C, D
MOA-AF	MINIMUM OUTSIDE AIR AIRFLOW QUANTITY ABSOL. MIN./ MIN.(CFM)	AI	SCHED			X	MOA-AF < SCHED - 15%	D
SUPPLY FAN								
SF-COM	SUPPLY FAN VFD COMMUNICATION	COM						
SF-C	SUPPLY FAN COMMAND (START/STOP)	BO						
SF-CO	SUPPLY FAN CONTROL OUTPUT - SPEED (PERCENT)	AO		SCHED				
SF-ST	SUPPLY FAN STATUS	BI				X	SF-ST <> SF-C	
SF-FLT	SUPPLY FAN VFD FAULT	BI				X	COMMON ALARM	
UFP-PS	UNDERFLOOR PLENUM PRESSURE SENSOR	AI	0.09 INWG (ADJ)			X		D,G
RETURN AIR DAMPER (MODULATING)								
RD-CO	RETURN AIR DAMPER CONTROL OUTPUT	AO			NO			
RD-P	RETURN AIR DAMPER POSITION	AI				X	RD-P <> RD-CO	
RETURN AIR BYPASS DAMPER (MODULATING)								
RAB-CO	RETURN AIR BYPASS DAMPER CONTROL OUTPUT	AO			NO			
RAB-P	RETURN AIR BYPASS DAMPER POSITION	AI				X	RAB-P <> RAB-CO	
MINIMUM OUTSIDE AIR DAMPER (MODULATING)								
MOD-CO	MINIMUM OUTSIDE AIR DAMPER CONTROL OUTPUT	AO			NC			
MOD-P	MINIMUM OUTSIDE AIR DAMPER POSITION	AI				X	MOD-P <> MOD-CO	
ECONOMIZER OUTSIDE AIR DAMPER (MODULATING)								
EOD-CO	ECONOMIZER OUTSIDE AIR DAMPER CONTROL OUTPUT	AO			NC			
EOD-P	ECONOMIZER OUTSIDE AIR DAMPER POSITION	AI				X	EOD-P <> EOD-CO	
FILTERS								
DF-SAP	DIRTY FILTER INDICATION (SA PRE FILTER)	BI	SCHED.			X	ON ACTIVATION	D
DF-SAM	DIRTY FILTER INDICATION (SA MAIN FILTER)	BI	SCHED.			X	ON ACTIVATION	D
COOLING COIL - CHILLED WATER MODULATING								
CHWV-CO	CHILLED WATER VALVE CONTROL OUTPUT	AO			NO			
CHWV-P	CHILLED WATER VALVE POSITION (PERCENT)	AI				X	CHWV-P <> CHWV-CO	
HEATING COIL - ELECTRIC SCR MODULATING								
HE-CO	ELECTRIC HEAT SCR MODULATION CONTROL OUTPUT	AO						
FIRE ALARM/SMOKE DETECTORS								
SD	SUPPLY AIR DUCT SMOKE DETECTOR STATUS	BI				X	ON ACTIVATION	K
RD	RETURN AIR DUCT SMOKE DETECTOR STATUS	BI				X	ON ACTIVATION	K
MISCELLANEOUS POINTS								
SLB-TS	SLAB TEMPERATURE	AI						
UFP-HS	UNDER FLOOR PLENUM RH SENSOR	AI						
UFP-WS	UNDER FLOOR WATER ROPE SENSOR	AI				X	ON ACTIVATION	

ALL POINTS SHOWN SHALL BE PROVIDED BY BAS CONTRACTOR UNLESS NOTED OTHERWISE.

NOTES:
A. DISPLAY VALUE WITH AHU GRAPHIC AT BAS FRONT-END.
C. REFERENCE AHU SCHEDULE FOR SETPOINT.
D. POINT SHALL BE ADJUSTABLE.
G. DETERMINE SETPOINT DURING TESTING AND BALANCING. COORDINATE WITH THE TEST AND BALANCE CONTRACTOR.
K. DEVICE AND RELAY FROM FIRE ALARM SYSTEM PROVIDED BY DIVISION 28. DISPLAY DETECTOR RELAY STATUS (NORMAL/ALARM) AT BAS FRONT END.

SEQUENCE OF OPERATIONS
UNDERFLOOR VARIABLE VOLUME DISPLACEMENT AIR
AIR HANDLING UNIT (AHU-01)

This sequence of operations is organized into the following main categories: operating modes; control setpoint resets; safeties, overrides and interlocks; and component control loops. The operating modes describe the criteria that either enable or disable the various modes of operation. If a mode of operation is not listed within a component control loop section then that mode of operation has no direct influence on the operation of the component. The control setpoint reset section describes the logic and reference variables that will be used to reset control setpoints to a new value within its reset range. The safeties, overrides, and interlocks section outlines the hardwired interlocks that are required to meet life safety requirements. Safeties and interlocks take precedence over all other control strategies outlined in this document. The control responses of each component for the various modes of operation are described in the component control loop sections. Setpoints shall be adjustable (adj.) as noted.

The sequence of operations, the points list and control diagrams shall be used to provide a complete description of the control philosophy for the controlled equipment. Individual setpoint values, reset ranges, and alarm action levels are listed in the points list. Components and control sensor locations are graphically depicted on the control diagram. The controls contractor shall be responsible for coordinating any necessary time delay setpoints to establish stable system operation.

GENERAL DESCRIPTION

The air handling unit(s) described by this sequence of operations consist(s) of variable speed supply fan, chilled water cooling coil, and electric heating coil serving modulating floor diffusers to condition spaces shown on drawings.

The air handling unit control is provided with a terminal strip with direct digital controls furnished and installed with the building automation system (BAS). The BAS shall provide remote setpoint adjustment, scheduling and monitoring through the BAS controller.

OPERATING MODES
OCCUPIED MODE:
The unit shall be in occupied mode per the Project Design Conditions Schedule shown on the control drawings.

UNOCCUPIED MODE:
The unit shall be in unoccupied mode for all periods not included in the occupied hours of operation. Overrides of unoccupied schedule are defined at the zone level control.

DEHUMIDIFICATION MODE:
The unit shall be in dehumidification mode when the return air humidity sensor (RAH) senses humidity above 55% RH (adj.).The unit shall exit dehumidification mode when the humidity drops below 55% (adj.).

ECONOMIZER MODE- OUTSIDE AIR ENTHAPY ENABLED:
The unit shall be in economizer mode when:
The supply fan status is on;
And- the AHU is not in freeze protection mode;
And- the outside air temperature is less than the return air temperature(adj.);
And- the outside air enthalpy is less than the return air enthalpy.

ECONOMIZER MODE – OUTSIDE AIR ENTHALPY DISABLED:
The unit shall be in economizer disabled mode when:
Any of the enabled conditions are not met;
And- the outside air temperature is less than 35 degrees F (adj.);

MORNING STARTUP MODE:
The unit shall be in morning startup mode according to an optimum start sequence to allow the temperature control zones to reach their scheduled occupied setpoints before the scheduled occupancy time.

FREEZE PROTECTION MODE:
The unit shall be in freeze protection mode when the cooling coil temperature sensor (CC-LAT) senses a temperature below the alarm setpoint.
The unit shall automatically reset when the cooling coil temperature sensor (CC-LAT) senses a temperature above the alarm setpoint.

LOSS OF POWER RESTART DELAY MODE:
The unit shall be in loss of power mode upon restoration of power after an unexpected loss of power. The unit shall remain in this mode for the duration as defined by the unit start delay (USD) setpoint. Once the unit start delay duration has elapsed, the unit shall return to the previous mode prior to loss of power.

CONTROL SETPOINT RESETS
SUPPLY AIR TEMPERATURE RESET
The supply air temperature (SAT) setpoint shall reset based on return air temperature (RAT). When return air temperature (RAT) falls to 70 degrees F or below supply air temperature (SAT) shall reset from 65 degrees F to 68 degrees F.
If dehumidification mode is triggered, reset setpoint to the minimum value and hold until unit exits dehumidification mode.

VENTILATION RESET:
System Level Ventilation Reset - shall modify the minimum outside airflow setpoint value between the absolute minimum and the minimum outside airflow values shown on the air-handling unit schedule subject to the maximum return air CO2 setpoint as scheduled in the Project Design Conditions Schedule.

SAFETIES, OVERRIDES AND INTERLOCKS
SMOKE DETECTOR INTERLOCK:
The unit shall be disabled via hard wired interlock on activation of a system smoke detector. Display smoke detector relay status alarm at the BAS front end.

COMPONENT CONTROL LOOPS
SUPPLY FAN CONTROL- VFD:
When the HOA switch is in hand position, the variable speed supply fan shall operate at a speed set manually by the operator at the user interface of the drive.
When the HOA switch is in off position, the fan shall be off.
When the HOA switch is in auto position, the variable speed supply fan shall operate subject to the unit enable signal, and unit operating modes.
When in Occupied Mode:
The fan shall energize and slowly ramp to the initial minimum fan speed determined during system startup. Minimum fan speed shall be established during balancing.
The fan VFD shall modulate to control plenum static pressure (UFP-PS) at setpoint. Provide multiple sensors as shown on the drawings and control to the sensor furthest from setpoint.
When in Dehumidification Mode:
The fan VFD shall modulate to control plenum static pressure (UFP-PS) at setpoint.
When in Unoccupied Mode:
The fan shall be OFF. On a call for cooling or override signal from the zone level, the fan shall operate as in occupied mode until the call is cleared or the override is removed.
When in Morning Startup Mode:
The fan shall operate as in occupied mode.
When in Freeze Protection Mode:
The fan shall be ON.

MIXED AIR DAMPERS WITH ECONOMIZER
The mixed air damper assembly consists of a minimum outside air (MOA) damper, return air (RA) damper and economizer outside air (EOA) damper.
When in Occupied Mode:
The MOA damper shall be open, the RA damper is open and the EOA damper is closed.
MOA Active Control- The MOA and RA dampers shall vary together to satisfy the minimum outside airflow setpoint as indicated by the minimum OA airflow measuring station (MOA-AF).
When in Unoccupied Mode:
The MOA and EOA dampers shall be fully closed and RA damper shall be fully open. On a call for cooling or override signal, the MOA and EOA dampers shall remain closed unless beneficial for cooling.
When in Economizer Mode:
The MOA shall remain open. The EOA damper shall modulate in opposing direction to the RA damper to maintain the mixed air temperature (MAT) setpoint.
When in Morning Startup Mode:
The MOA and EOA dampers shall be fully closed and the RA damper shall be fully open. The MOA and EOA dampers shall be allowed to open if beneficial for cooling.
When in Freeze Protection Mode:
The MOA and EOA dampers shall be fully closed and the RA damper shall be fully open.

RETURN AIR BYPASS DAMPERS (RAB)
When in Occupied Mode:
The dampers shall modulate to maintain the supply air temperature setpoint (SAT).
When in Unoccupied Mode:
The dampers shall be closed.
When in Morning Startup Mode:
The dampers shall modulate to maintain the supply air temperature setpoint (SAT).
When in Freeze Protection Mode:
The dampers shall be fully open.

FILTER MONITORING
When in All Modes:
The controller shall monitor the differential pressure across each filter bank and shall provide a signal when the setpoint is exceeded.

HEATING COIL - ELECTRIC SCR
When in Occupied Mode:
The controller shall modulate the heating to maintain the coil leaving air temperature setpoint (CC-LAT).
When in Unoccupied Mode:
The coil shall be OFF.
On a call for heating or override signal from the zone level the baseboard heaters shall modulate to maintain unoccupied heating setpoint. If unoccupied setpoint is still not satisfied, the unit shall energize in unoccupied mode and heating coil shall modulate heat to a supply air temperature of 70 degrees F.
When in Economizer Mode:
The coil shall be OFF.
When in Morning Startup Mode:
The coil shall operate as in occupied mode.
When in Freeze Protection Mode:
The coil shall be fully on.

COOLING COIL CHILLED WATER VALVE – MODULATING
When in Occupied Mode:
The valve shall modulate to maintain the cooling coil leaving air temperature setpoint (CC-LAT).
When in Dehumidification Mode:
The controller shall modulate the chilled water valve (CHWV-P) to maintain return air humidity (RAH) at 55%. The return air bypass damper shall modulate to maintain the supply air temperature setpoint (SAT).
When in Unoccupied Mode:
The valve shall be closed.
On a call for cooling or override signal from the zone level the valve shall operate as in occupied mode until the call is cleared or the override is removed.
When in Economizer Mode:
The coil shall be OFF.
When in Morning Startup Mode:
The valve shall operate as in occupied mode.
When in Freeze Protection Mode:
The valve shall be fully open.

UNDER FLOOR PLENUM DEWPOINT MONITORING
When in Occupied Mode:
Slab temperature sensors (SLB-TS) shall be located in underfloor plenum per plan locations. These shall be associated with the adjacent under floor plenum relative humidity sensors (UFP-HS). The temperature sensor and relative humidity sensor shall be utilized to calculate the dewpoint (UFD-DP). If the dewpoint of the supply air is approaching the slab temperature, the cooling coil discharge air setpoint shall be reset to maintain 2 degrees F (adj) less than calculated dew point.

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KS. CORPORATE NO: E-325
EXPIRES 12/31/2020

Construction Documents

Valley Park Elementary School Addition

Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

#	Description	Date
1	Addendum 01	11.20.2018

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M602

MECHANICAL CONTROLS

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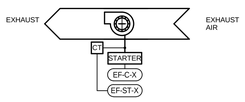
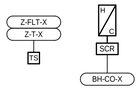
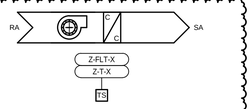


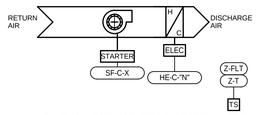
1 EXHAUST FANS (BAS CONTROLLED)
NTS



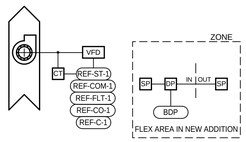
2 TERMINAL HEATING UNITS (BASEBOARD)
NTS



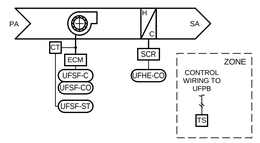
3 SPLIT SYSTEM ROOM AC UNITS (CRU-1)
NTS



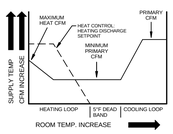
4 ELECTRIC CABINET UNIT HEATER (UH-X)
NTS



5 BUILDING RELIEF FAN (RF-1)
NTS



UFPB CONTROL SCHEMATIC
UFPB COOLING AND HEATING
DUAL MAXIMUM
MODULATING SCR HEATER



TC/C TO PROVIDE CONTROL TRANSFORMER FOR CONTROLS WIRING. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF DEDICATED 120V CONTROLS CIRCUIT(S).

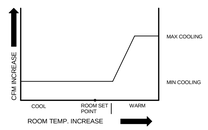
6 UNDERFLOOR FAN-POWERED BOX (UPFB-1)
NTS

MISCELLANEOUS CONTROL POINTS

POINT ID	DESCRIPTION	POINT TYPE	DEFAULT SETPOINT	RANGE	FAIL POSITION	DISPLAY GRAPHIC	TRENDING STORAGE	STATUS ALARM	NOTES
GLOBAL VALUES									
BDP	BUILDING DIFFERENTIAL PRESSURE	AV							B
EXHAUST FANS									
EF-C	EXHAUST FAN COMMAND (START/STOP)	BO				X	X		
EF-ST	EXHAUST FAN STATUS (CT)	BI				X		X	
BUILDING RELIEF FAN									
REF-COM	RELIEF EXHAUST FAN VFD COMMUNICATION	COM							
REF-CO	RELIEF EXHAUST FAN CONTROL OUTPUT - SPEED (PERCENT)	AO	20-100 PCT						
REF-C	RELIEF EXHAUST FAN COMMAND (START/STOP)	BO						X	
REF-FLT	RELIEF EXHAUST FAN VFD FAULT	BI							
REF-ST	RELIEF EXHAUST FAN STATUS (CT)	BI							
ELECTRIC BASEBOARD HEAT									
Z-T-X	ZONE TEMPERATURE	AI	68 F			X	X		A
Z-FLT-X	ZONE TEMPERATURE ALARM	AI	50 F, 90 F			X		X	A
BH-CO-X	UNIT COMMAND (START/STOP)	BO				X			A
SPLIT SYSTEM ROOM AC UNITS (CRU-1)									
Z-T	ZONE TEMPERATURE	AI	70 F			X	X		
Z-FLT	ZONE TEMPERATURE ALARM	AI				X		X	
ELECTRIC CABINET UNIT HEATERS (CUH-1 AND 2, UH-1) ("X" = UNIT NUMBER DESIGNATION)									
Z-T-X	ZONE TEMPERATURE	AI	60			X			A
Z-FLT-X	ZONE TEMPERATURE ALARM	AI				X		X	A
SF-C-X	SUPPLY FAN COMMAND (START/STOP)	BO				X	X		A
SF-ST-X	SUPPLY FAN STATUS (CT)	BI				X		X	A
HE-C-"N"	HEATING COIL ELECTRIC HEAT COMMAND	BO							A
UNDERFLOOR FAN-POWERED BOX									
UFSF-C	UFPB SUPPLY FAN COMMAND (START/STOP)	BO				X	X		
UFSF-CO	UFPB FAN CONTROL OUTPUT - SPEED (PERCENT)	AO	20-100 PCT						
UFSF-ST	UFPB FAN STATUS (CT)	BI						X	
UFHE-CO	ELECTRIC SCR HEATING COIL MODULATION CONTROL OUTPUT	AO			NO				

NOTES:
A. POINTS APPLY TO MULTIPLE UNITS. SEE CONTROL DIAGRAMS FOR NUMBER OF UNITS.
B. SETPOINT TO MATCH EXISTING BUILDING SETPOINT.

FLOOR DIFFUSER CONTROL SCHEMATIC



TC/C TO PROVIDE CONTROL TRANSFORMER FOR CONTROLS WIRING AND UNDERFLOOR MODULATING CONTROLLERS. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF DEDICATED 120V CONTROLS CIRCUIT(S).

VARIABLE AIR VOLUME FLOOR DIFFUSER BALANCING SCHEDULE

ROOM NUMBER	PRIMARY AIR TURNDOWN	MINIMUM CFM	PRIMARY CFM	ASSOCIATED THERMOSTAT
A102 CLASSROOM	35%	298	850	A102
A103 CLASSROOM	35%	298	850	A103
A105 COLLAB	30%	105	350	A105
A107 CLASSROOM	32%	304	950	A107
A108 COLLAB	30%	120	400	A108
A109 CLASSROOM	32%	288	900	A109
A110 CLASSROOM	32%	288	900	A110
A111 COLLAB	30%	120	400	A111
A112 CLASSROOM	32%	304	950	A112
A114 FLEX	30%	1230	4100	A114-1 THROUGH A114-5

SEQUENCE OF OPERATIONS
MODULATING FLOOR DIFFUSER CONTROLLER

The sequence of operations, the points list and control diagrams shall be used to provide a complete description of the control philosophy for the controlled equipment. Individual setpoint values, reset ranges, and alarm action levels are listed in the points list. Components and control sensor locations are graphically depicted on the control diagram. The controls contractor shall be responsible for coordinating any necessary time delay setpoints to establish stable system operation.

OPERATING MODES

OCCUPIED MODE:
The controller shall be in occupied mode per the Project Design Conditions Schedule shown on the control drawings.

UNOCCUPIED MODE:
The controller shall be in unoccupied mode for all periods not included in the occupied hours of operation. Overrides of unoccupied schedule are defined at the zone level control.

COMPONENT CONTROL LOOPS
When in Occupied Mode and in Unoccupied Mode:

Controller shall modulate actuators at diffuser baskets per control schematic shown in response to zone temperature (Z-T).

SEQUENCE OF OPERATIONS
MISCELLANEOUS EQUIPMENT

This sequence of operations is organized into the following main categories: operating modes; safeties, overrides and interlocks; and component control loops. The operating modes describe the criteria that either enable or disable the various modes of operation. If a mode of operation is not listed within a component control loop section then that mode of operation has no direct influence on the operation of the component. The control setpoint reset section describes the logic and reference variables that will be used to reset control setpoints to a new value within its reset range. The safeties, overrides, and interlocks section outlines the hardwired interlocks that are required to meet life safety requirements. Safeties and interlocks take precedence over all other control strategies outlined in this document. The control responses of each component for the various modes of operation are described in the component control loop sections. Setpoints shall be adjustable (adj.) as noted.

The sequence of operations, the points list and control diagrams shall be used to provide a complete description of the control philosophy for the controlled equipment. Individual setpoint values, reset ranges, and alarm action levels are listed in the points list. Components and control sensor locations are graphically depicted on the control diagram. The controls contractor shall be responsible for coordinating any necessary time delay setpoints to establish stable system operation.

EXHAUST FANS (EF-X, BAS CONTROLLED)
OPERATING MODES

OCCUPIED MODE:
The unit shall be in occupied mode per the Project Design Conditions Schedule shown on the control drawings.

UNOCCUPIED MODE:
The unit shall be in unoccupied mode for all periods not included in the occupied hours of operation. Overrides of unoccupied schedule are defined at the zone level control.

BUILDING RELIEF FANS (RF-1, BAS CONTROLLED)
GENERAL DESCRIPTION
The building differential pressure control system consists of relief exhaust fan operating with a building differential pressure sensor to maintain the building static pressure differential setpoint.
Relief exhaust fan (RF-1) will operate with air handler unit (AHU-1) to provide building relief exhaust when the units are in occupied and economizer mode.
OPERATING MODES

OCCUPIED MODE:
The building is in occupied when the air handler is in occupied mode.

UNOCCUPIED MODE:
The building is in unoccupied when the air handler is in unoccupied mode.

ECONOMIZER MODE:
The building is in economizer when the air handler is in economizer mode.

COMPONENT CONTROL LOOPS
RELIEF EXHAUST FAN – BUILDING PRESSURE
The relief exhaust fan provides building relief-exhaust to maintain the building differential setpoint.
When in Unoccupied Mode:
The relief fan is off.
When in Occupied Mode:
The relief exhaust fan VFD speed shall vary to maintain the building differential pressure (BDP) setpoint.
When in Economizer Mode:
The relief exhaust fan VFD speed shall vary to maintain the building differential pressure (BDP) setpoint.

TERMINAL HEATING UNITS (BH-X, BAS CONTROLLED)
OPERATING MODES

STANDBY MODE:
The units shall be in standby mode when the zone temperature (Z-T) is above space temperature setpoint.

HEATING MODE:
The units shall be in heating mode when the zone temperature (Z-T) is below space temperature setpoint.

COMPONENT CONTROL LOOPS

HEATING COIL
When in Standby Mode:
The unit shall remain off.
When in Heating Mode:
Modulate the heating coil to maintain the space temperature setpoint (Z-T).

SPLIT SYSTEM ROOM AC UNITS (CRU-X)

COMPONENT CONTROL LOOPS – ALL MODES
When in All Modes:
The space temperature sensor shall cycle the indoor unit and condensing unit as required to maintain the space temperature as indicated by Z-T-X and scheduled in the project design conditions schedule.
If space temperature rises 5 degrees F above setpoint, an alarm shall be generated.

ELECTRIC CABINET UNIT HEATER (UH-X, CUH-X)
OPERATING MODES

STANDBY MODE:
The units shall be in standby mode when the zone temperature (Z-T) is above space temperature setpoint.

HEATING MODE:
The units shall be in heating mode when the zone temperature (Z-T) is below space temperature setpoint.

COMPONENT CONTROL LOOPS

HEATING COIL
When in Standby Mode:
The unit shall remain off.

When in Heating Mode
Modulate the heating coil and fan to maintain the space temperature setpoint (Z-T).

If the space temperature drops 15 degrees F below setpoint, an alarm shall be generated.
The unit fan shall start and heating coil shall energize as required to maintain the space temperature setpoint as measured.

UNDERFLOOR FAN-POWERED BOX (UFPB-1)
OPERATING MODES

OCCUPIED MODE:
The unit shall be in occupied mode per the Project Design Conditions Schedule shown on the control drawings.

UNOCCUPIED MODE:
The unit shall be in unoccupied mode for all periods not included in the occupied hours of operation. Overrides of unoccupied schedule are defined at the zone level control.

COMPONENT CONTROL LOOPS

When in Occupied Mode:
The fan shall energize and slowly ramp to the initial minimum fan speed determined during system startup (UFSF-C). Minimum fan speed shall be established during balancing. The space temperature sensor in space shall dictate fan speed. Fan shall ramp up as needed to meet cooling demand (UFSF-CO). Fan shall modulate down to minimum upon zone satisfaction. On a call for heating from zone temperature sensor the electric heating coil shall be enabled (UFHE-CO) with fan at minimum speed. Electric heating coil and fan shall modulate up as space requires to satisfy space temperature sensor.

When in Unoccupied Mode:
The space temperature sensor shall cycle the fan powered box as it does in occupied mode to meet the unoccupied mode setpoints.

If space temperature rises or falls 10 degrees F above or below setpoint, an alarm shall be generated.

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Construction Documents

Valley Park Elementary School Addition

Blue Valley School District
12301 Lamar Ave.
Leawood, KS 66209
Project Number: VPE-1901

REVISIONS:

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M603

MECHANICAL CONTROLS

CARL J. HOLDEN

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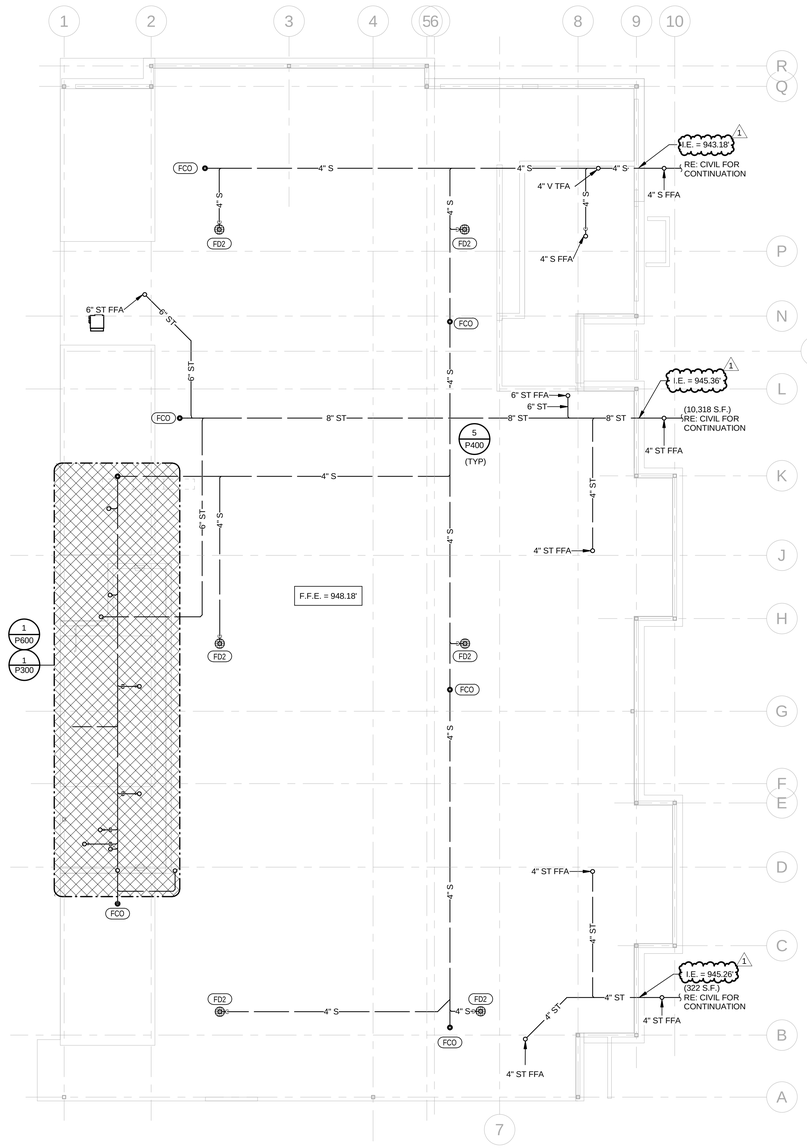
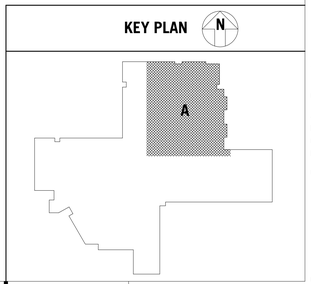


1 PLUMBING PLAN - CRAWL SPACE - AREA A
1/8" = 1'-0"



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PLUMBING CRAWL SPACE LEVEL PLAN

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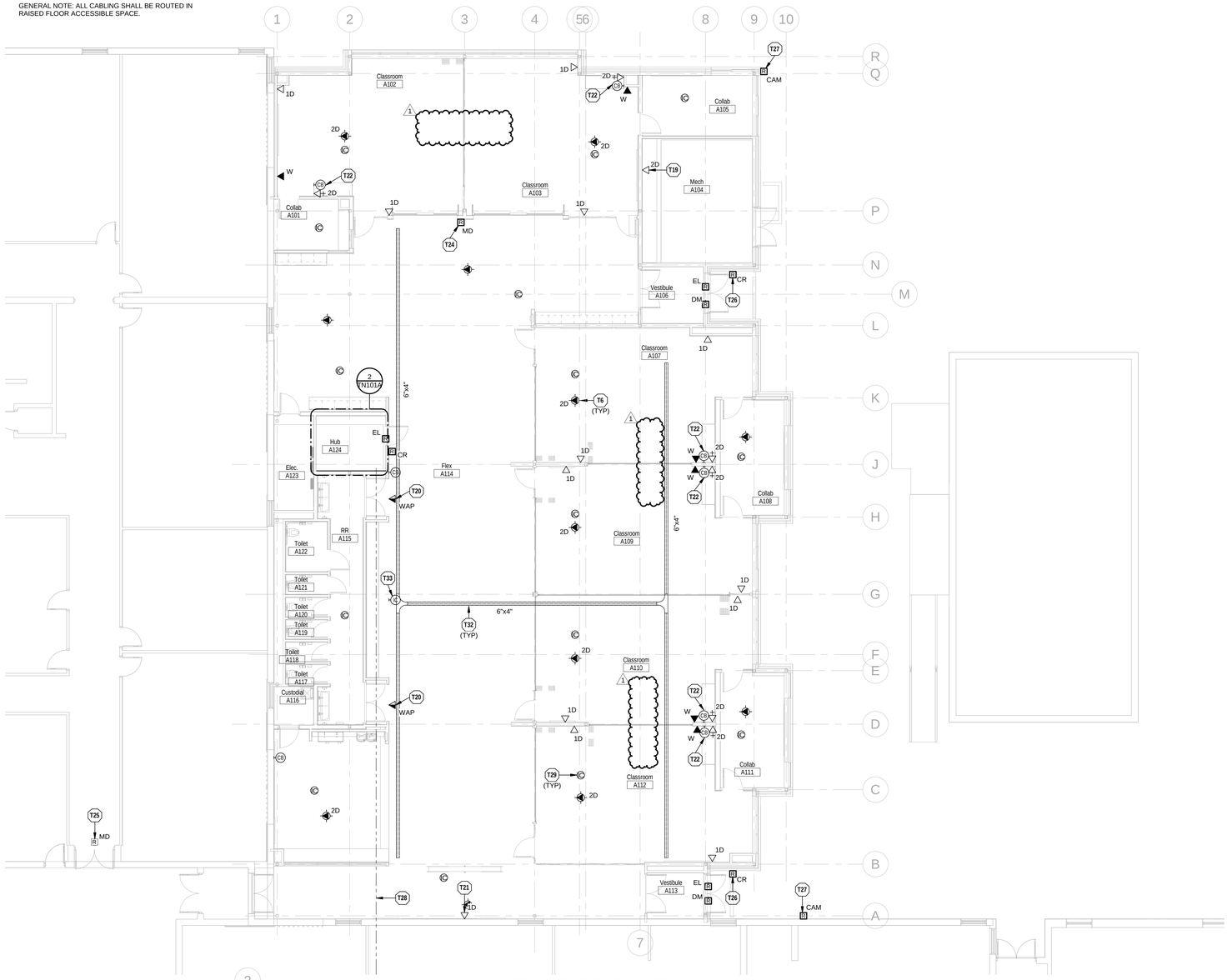
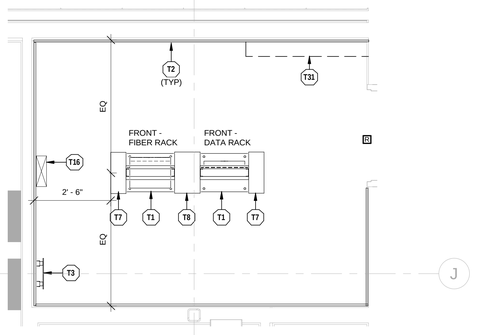
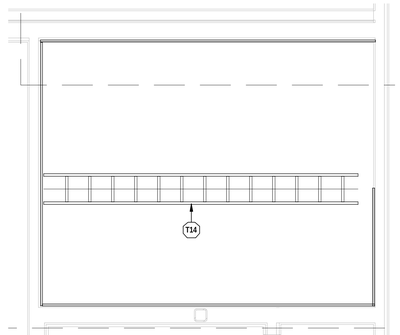
GENERAL NOTE: ALL CABLING SHALL BE ROUTED IN RAISED FLOOR ACCESSIBLE SPACE.



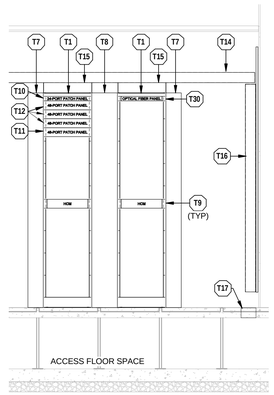
1 TECHNOLOGY LEVEL 1 PLAN - AREA A
1/8" = 1'-0"



2 HUB A124 ENLARGED PLAN
1/2" = 1'-0"



3 HUB A124 RCP
1/2" = 1'-0"

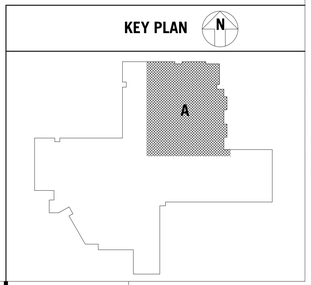


4 HUB A124 RACK ELEVATION
1/2" = 1'-0"

TECHNOLOGY PLAN NOTES

T1	2-POST 7' TALL EQUIPMENT RACK.
T2	TELECOMMUNICATIONS BACKBOARD.
T3	TELECOMMUNICATIONS GROUND BUS BAR (TGB). REFER TO DETAIL 5/TN400.
T6	DATA OUTLET FOR WIRELESS ACCESS POINT.
T7	6" VERTICAL CABLE MANAGER WITH DOORS.
T8	8" VERTICAL CABLE MANAGER WITH DOORS.
T9	HORIZONTAL CABLE MANAGER.
T10	24 PORT CATEGORY 6 PATCH PANEL FOR COPPER BACKBONE.
T11	48 PORT CATEGORY 6A PATCH PANEL FOR WIRELESS ACCESS POINT OUTLETS.
T12	48 PORT CATEGORY 6 PATCH PANEL WALL WORK AREA OUTLETS.
T14	12" WIDE LADDER RACK WITH 9" RUNG SPACING.
T15	WATERFALL TROUGH.
T16	VERTICAL LADDER RACK ON BACKBOARD.
T17	KOLDLOK RAISED FLOOR GROMMET.
T19	DATA WALL OUTLET FOR MECHANICAL EQUIPMENT. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
T20	DATA WALL OUTLET FOR WIRELESS ACCESS POINT ON FACE OF SOFFIT. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
T21	DATA WALL OUTLET FOR OFCI SHORT THROW PROJECTOR. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH OWNER PRIOR TO INSTALLATION.
T22	SEE DETAIL 7/TN400 FOR TYPICAL TOUCHDOWN WALL ELEVATION.
T24	ROUGH-IN AND CABLING FOR MOTION DETECTOR. COORDINATE EXACT MOUNTING HEIGHT WITH OWNER PRIOR TO INSTALLATION. ROUTE (2) 18/4 NON-SHIELDED PLENUM CABLES FROM NEW DEVICE LOCATION TO EXISTING MOTION DETECTOR AND LEAVE 6' OF SLACK IN EACH END.
T25	EXISTING MOTION DETECTOR. ROUTE CABLES FOR NEW MOTION DETECTOR TO THIS DEVICE.
T26	ROUGH-IN AND CABLING FOR ACCESS CONTROL DOOR. PROVIDE SINGLE GANG BACK BOX FOR CARD READER AT 48" AFF. ROUTE COMPOSITE ACCESS CONTROL CABLE FROM ACCESSIBLE CEILING SPACE ABOVE DOOR TO HUB A124. LEAVE 6' OF SLACK AT EACH END OF CABLE.
T27	ROUGH-IN AND CABLING FOR VIDEO SURVEILLANCE CAMERA. COORDINATE EXACT MOUNTING HEIGHT WITH OWNER PRIOR TO INSTALLATION. PROVIDE (2) CATEGORY 6 CABLES FROM HUB A124. LEAVE 6' OF SLACK AT EACH END.
T28	PROVIDE 24-STRAND SINGLE MODE FIBER CABLE AND 25-PAIR CATEGORY 5E CABLE FOR DATA AND TELEPHONE BACKBONE AND (2) RS-485 SHIELDED CABLE FOR ACCESS CONTROL FROM HUB A124 TO EXISTING MDF IN MEDIA CENTER.
T29	ALL INTERCOM SPEAKERS SERVED FROM EXISTING INTERCOM HEADEND IN ADMIN AREA.
T30	OPTICAL FIBER PANEL.
T31	WALL SPACE RESERVED FOR SECURITY EQUIPMENT (BY OTHERS)
T32	CABLE TRAY ROUTED IN ACCESSIBLE FLOOR SPACE. COORDINATE ROUTING OF CABLE TRAY WITH ALL OTHER TRADES PRIOR TO INSTALL.
T33	CENTER INTERCOM SPEAKER BETWEEN DISPLAY CASES.

KEY PLAN



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TN101A

TECHNOLOGY LEVEL 1 PLAN - AREA A

DOUGLAS M. EVERHART

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